By the Same Author

SPIRITUAL PLURALISM AND
RECENT PHILOSOPHY

THE SUPREMACY OF SPIRIT

PLURALISM (*Encyclopædia Britannica,*
Fourteenth Edition)

HAPPINESS, FREEDOM, AND GOD

STRATEGY OF LIVING

METHODS AND EXPERIMENTS
IN MENTAL TESTS

With C. W. Stokes

THE GROWTH AND VARIABILITY
OF INTELLIGENCE

Knowledge Reality and Life

by

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George G. Harrap & Co. Ltd
London Toronto Bombay Sydney

First published 1950
by GEORGE G. HARRAP & CO. LTD
182 High Holborn, London, W.C.1

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Dewey Decimal Classification: 121

Composed in Imprint type and printed and bound by
William Clowes and Sons Limited, London and Beccles
Made in Great Britain

". . . The name of the song is called *Haddocks' Eyes.*"

"Oh, that's the name of the song, is it ?" Alice said, trying to feel interested.

"No, you don't understand," the Knight said, looking a little vexed. "That's what the name is *called.* The name really *is The Aged Aged Man.*"

"Then I ought to have said, 'That's what the *song* is called' ?" Alice corrected herself.

"No, you oughtn't : that's quite another thing ! The *song* is called *Ways and Means* : but that's only what it's *called*, you know !"

"Well, what *is* the song, then ?" said Alice, who was by this time completely bewildered.

"I was coming to that," the Knight said. "The song really *is A-sitting on a Gate.*"

Lewis Carroll, *Through the Looking-Glass*

Preface

THIS book is an attempt to investigate the nature of knowledge, to determine the implications of our usage of such words as 'knowledge' and 'truth,' and to apply the results of this inquiry—in which problems of symbolism and meaning play a large part—to the main fields of human study.

The first chapter of the book is a brief description of the general philosophical position in which I found myself at the beginning of the inquiry. The second and main chapter deals with general theory of knowledge and the various kinds of problems which this involves; and I should like here to express my gratitude to Bertrand Russell, who kindly read this chapter in draft and sent me valuable comments on certain points in it, which I have accordingly tried to clarify or to correct in the final version.

The remaining chapters are based on the application of the results arrived at in the second chapter to fundamental questions in the fields of science and philosophy. I have considered fundamental physics first, as this in some ways brings out most clearly the general issues involved; but, if the more technical portions of this third chapter lack interest for some readers, they can be skipped without breaking the main thread of the inquiry.

In the field of epistemology I have derived much suggestion and stimulus from the works of the late Arthur Stanley Eddington. Whatever may be thought of Eddington's incursions into philosophy, there is no doubt that his work provides a great challenge and incentive to the epistemologist. Shortly before his last illness I had an opportunity of discussing with him, not the content of Chapter III—which was not written till some time after his death—but ideas then beginning to form in my mind which later resulted in the substance of that chapter. To his written and spoken word I owe much.

In the event, I have aimed at developing something which, for reasons apparent in the text, I should be prepared to speak of not so much as a 'true' philosophy but rather as a 'satisfying' philosophy, in particular satisfying in so far as it exhibits on the one hand those questions to which answers may be found and the significance both of the answers themselves and of the actual process of answering, and, on the other hand, those pseudo-questions which are without significance and which it is therefore pointless to ask.

C. A. R.

January 1949

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CHAPTER I

Metaphysical Prolegomena

A STUDY of the writings of professional philosophers during recent years reveals a notable and significant change of focus. During the latter part of the nineteenth century and the beginning of the twentieth there became apparent a marked tendency on the part of philosophy to pass from the traditional construction of vast and comprehensive metaphysical systems—which had for the most part proved extremely vulnerable to criticism, and therefore disappointing in their results—to a more limited task—namely, the investigation of special problems and the accompanying development of a technique designed to yield definite conclusions in restricted fields. At the same time attempts were made to determine the possibilities, and the limitations, of those ways of thought which might appropriately be termed philosophical study.

During the past two decades this tendency has developed still further, and the consideration of that branch of metaphysical thought which is mainly concerned with ontology has largely given way to the investigation of the problems of epistemology and theory of knowledge, problems which are undoubtedly logically and metaphysically prior to those of ontology.

The process now seems to be approaching a somewhat extreme limit, and we find that philosophers are devoting themselves more and more to the consideration of language and meaning, and to the general problems of semantics. The lead in this has been taken by that group of philosophers who call themselves 'logical positivists.'

The fundamental thesis of logical positivism may perhaps be briefly and baldly stated as follows: "A sentence intended to express a proposition is significant only if it is possible to infer from it, if necessary in combination with other propositions, at least one other proposition the truth or falsity of which it would be logically possible to verify by direct observation." It is alleged as a consequence of this thesis that metaphysical propositions of the traditional form are non-significant.

The logical positivists have made out a strong case, but criticism of their theories is developing.[1]

The present book is concerned mainly with matters dependent on epistemology and theory of knowledge, and much of what I shall have to say will evidently be relevant to the theory of logical positivism. But in this first chapter I shall try to give an outline of the general metaphysical position from which I approach the problems involved, for although, as I have already pointed out, epistemology is really logically prior to ontology, some knowledge of a writer's general metaphysical background may help the reader to understand what he is attempting to convey when dealing with questions in a more limited field. At the same time, I am very much aware that one cannot even begin to write on any philosophical topic without begging a considerable number of questions in theory of knowledge and semantics, and I shall of course have to take account of these in the final reckoning.

Metaphysical Theory

Existence consists for each of us in what we call 'experience'; that is, in the various activities—and I think this term is appropriate here—such as sensing, perceiving, imagining, thinking, acting, wishing, and so on, with the so-called 'feeling-tone' which accompanies them. All the words just used require consideration as to their meaning, but it is not my purpose to go further into the matter here. The problems involved have both a psychological and an epistemological aspect. The first of these aspects is dealt with in books on psychology—

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[1] See, for example, Stace's article "Positivism" in *Mind* (Vol. LIII, No. 211; July 1944).

though the psychologists are still seriously divided among themselves, both in their manner of approach to the problems in question and in their terminology and the interpretation which they put upon it. I shall, however, consider the epistemological aspect in subsequent chapters; but for the moment I shall assume that the terms I have used, including the all-embracing term 'experience,' have a reasonably definite, if not altogether precise, significance for the reader.

The experience-whole of the individual is essentially private to him and incommunicable in a sense which will be more fully considered later. It is also inclusive for him. Indeed, for him reality, the world, the universe—or whatever one likes to call it—consists in his experience and in nothing else; for whatever inferences or deductions (valid or invalid) he may draw are themselves included in his experience.

It follows that, in philosophizing, the individual is logically entitled to speak, at any rate in the first instance, only in the first person. Thus I cannot prove to myself that other beings exist. Yet I find my belief in their existence irresistible. Perhaps I arrive at that belief mainly through that aspect of my experience which consists in the observation of the behaviour of other bodies similar to my own body. Nevertheless, I cannot prove to myself that the belief is true.

On the other hand, I cannot get far without assuming the existence of other beings, and I shall accordingly make the assumption. But again, all I am logically entitled to hold to is the *hope* that other beings *do* exist, and that if they do the nature of some of them is such that, through this activity of mine which I call 'writing a book,' I somehow convey to them something which is significant for them. It should, however, be added that, in the absence of logical proof, the fact that the assumption of the existence of other beings affords me the perhaps unanalysable sense of satisfaction arising from what I call 'the making of my experience more intelligible to me,' is perhaps a reason—though a far from conclusive one—for believing in the existence of others.

With this fundamental assumption, I should go on to say that I take the existence of other beings also to consist in experience: experience which, though it may be of an indefinite variety of types and levels for different individual existents, has in every case that essential characteristic of experience which I can only call 'being for itself,' and which I think cannot be analysed further.

Though I am aware of the technical use of the term 'existence' in logic, metaphysically speaking I shall apply the term 'existent' only to the individual experience-wholes, which I shall designate by the Leibnizian term 'monads' as both convenient and appropriate. I hold that the traditional metaphysical term 'substance' can be suitably applied only to monads, which I regard as constituting the ultimate substance —or, if you like, substances—of reality. In short, I accept the principle that nothing has being in itself (existence) unless it has being for itself. If there are entities with a type of being other than monadic, and yet concrete or substantial in any meaning of those terms which is not altogether arbitrary and divorced from their common usage, it must be for ever beyond our apprehension. But for myself I cannot conceive the possibility of any such type of substantial being, nor do I feel it necessary to take any account of such a hypothesis, as I believe a consistent and intelligible theory of reality—the only reality of which we can ever be aware—can be framed on the basis of monadic existence. I leave for later discussion the supposed non-substantial types of being or 'subsistence' sometimes attributed to such things as propositions and concepts.

I have presented in detail elsewhere [1] the type of ontological theory I support, and it will be seen from that exposition that I share the views of those philosophers who believe that the difficulties and defects of the original Leibnizian monadology, and of some of the philosophies which derived from it, can be met, if at all, not merely by certain necessary modifications in detail—especially in regard to the nature of the relations between monads—but in essence only by supplementing and developing the theory of spiritual pluralism which it entails by some form of what can not inappropriately be termed 'theism'—though a theism radically different in certain important respects from that of Leibniz himself. This extension is, however, not particularly relevant to my present purpose, and I shall not consider it further here. But the characteristics of the monadic experience itself are important, and require some discussion.

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[1] See *Spiritual Pluralism* (Cambridge University Press, 1919) and *Happiness, Freedom, and God* (Harrap, 1944).

The Monadic Experience

In the first place, I should say that the monad or individual experience-whole—*my* experience, or, if it is the same in its essential nature, *your* experience—is an *indivisible* whole in the sense that, in its concrete actuality, it is in no way made up of parts which are separate or separable, no matter how we may conceive it analytically in the abstract, a point to which I shall return.

I am aware that what I regard as the unity of the individual experience or monad has sometimes been regarded as in the nature of *continuity*, a continuity essentially akin to that of certain types of mathematical series. But I do not think this comparison is well founded, for we can pick out any term as such of a mathematical series as a particular and clearly defined separate entity. We cannot pick out and isolate 'parts' of our experience in this way.

I doubt, however, whether the matter is one for much profitable discussion. To me the indivisible unity of experience is patent, but I know of no effective way of trying to convert to this view those who disagree with it, though I would repeat that arguments of the mathematical continuity type, which are generally urged in support of the contrary view, seem to me to be inadmissible for the reason I have already given.

In the second place, I would submit that the individual monadic experience is not only an indivisible unity but is also *unitary* in character in the sense that it is a definite, self-contained whole, existentially distinct from other monads, and quite clearly determined as such by its character. It is a real unit of existence, and not merely artificial, hypothetical, or abstractly constructed. I believe it to be the only such unit, and it is for this reason that I regard it as an appropriate basis for ontological theory. I should not be prepared to deny that there *may* be a sense in which, in certain circumstances, an individual can enter into or share the experience of another, not only in imagination, but perhaps in a more direct way. But, even if this be sometimes possible, I do not think it invalidates the conception of the monad as a unitary existent in an absolute sense.

I feel that this unitary character of the monad may well be the real ground of the traditional idea of an ego or 'soul'—though the use of the latter term especially is various and generally rather vague—as a unifying factor which is the substantial basis of the individual experience. But it is, I think, sufficient for the purposes of metaphysics if we accept as ultimate the fact that the monad is a unit without embarking on a long, probably unprofitable, and perhaps meaningless discussion as to whether there is some further ground for this fact.

There is, however, one point of importance which is related to what has just been said. In reflective analysis of our experience it is usual to distinguish two factors in the latter which we call respectively 'subject' and 'object.' The use of these terms is so common—though less common than it was—in books on philosophy and psychology that I need not enter upon a detailed explanation of them here, except to say that by 'objects' of experience I mean such things as sense-data, images, movements, and so on, and not abstract constructs or so-called 'inferences' such as material bodies or material particles. But in actuality subject and object are no more separate or separable than, for example, the form and the content of anything, though in thinking about experience the separation of the concepts may be convenient and perhaps unavoidable. I would indeed suggest that the use of the terms 'subject' and 'object' may really be a way of expressing the unity of experience on the one hand and its diversity of content on the other. It is a fact of monadic experience that its diverse content is, metaphorically speaking, referred or related to a single centre, the 'I' of ordinary speech.

I am aware that in using such terms and phrases as 'sense-data,' 'images,' 'diversity of content,' and so on I may seem to be implying that experience is a whole of parts and so falling into a contradiction of my previous thesis. But I am ready to admit at once that in thinking and talking about experience we inevitably conceive it as a whole of parts, and it will be an essential aim of this inquiry to try to discover the significance of this if it is true that in actuality monadic experience is an indivisible unity. I shall attempt this task in the next chapter.

Another point which emerges in thinking about experience is that one feature of that experience is the sense of control over certain aspects of it, and even of actual creation or production of these, while other aspects are beyond this control. On the metaphysical theory which I support the factors in individual experience which are not controlled from within that experience, so to speak, would naturally be related to the existence of other monads, and might be described as arising from interaction between these. I think 'interaction' is an appropriate term in this connexion because 'activity' seems to me to be an appropriate name for an essential characteristic of the monadic existence or experience. For in perceiving, imagining, thinking, willing, we undoubtedly have the experience of *doing* something, and in the sense of control of experience through volition—this sense of control being itself experience—there is perhaps to be found the ultimate ground of the concept of efficient causality.

Realism and Idealism

It will, I think, be clear that from the point of view of a monadic philosophy such as I have outlined the antithesis between realism and Berkeleian idealism is an artificial one. In particular, the typical question raised in this connexion—namely, whether such things as unperceived sense-data exist—is not significant. The concept of sense-data results from the reflective analysis of experience, and in such analysis sense-data are for a monadic philosophy *essentially* parts of some individual experience, while this experience itself is *essentially* made up to a considerable extent of sense-data. Hence the idea of unperceived sense-data—*i.e.*, sense-data which are not parts of any experience—is meaningless. Indeed, for monadism the separation of the percipient, the act of perception, and the content of what is perceived, though it may have a certain conceptual convenience, is not an actual fact. The indivisible unit is the individual experience, and 'subject' and 'object' are simply concepts referring respectively to the unitary nature of that experience and the content which that unity comprises.

I am aware that the dismissal of the idea of unperceived sense-data is held by some to raise difficulties in connexion with the philosophy of physical science, especially in regard to matters of continuity. But such apparent difficulties seem to me to arise from a misconception with which I shall attempt to deal in due course.

Knowledge and Reality

There is a conclusion of great epistemological importance which seems to me to follow from a monadistic metaphysics. It is appropriate to refer to it briefly here, though its implications for theory of knowledge will qualify for detailed consideration in the next chapter. It concerns the nature of the relationship between reality and knowledge.

According to the view of 'common sense,' and of philosophies of the 'realist' type, the act of knowing is directed by the mind or subject upon a reality 'external' to it. I am not concerned here to attempt to determine the exact meaning which realist philosophers of various kinds would attach to such words as 'mind' and 'subject,' but simply to point out that the realist makes a fairly sharp distinction between the act of knowing and the knower—if there is such an entity—on the one hand, and the reality which is known on the other, especially where the latter consists of sensa, or of what are commonly called 'material objects,' which are regarded by some realists as consisting in groups or constructions of sensa. Knowledge is then constituted by such things as propositions and concepts which result in some way from acts of knowing. This rather bald statement will serve my present purpose, though strictly it should be qualified by certain considerations related to truth and belief, of which account must be taken later.

The spiritual pluralist, however, views the matter in a very different light. For him the individual monadic experiences—the monads—are themselves the actual and only constituents of reality. Knowing is then a process within experience, and not an act directed to an 'external' reality, while knowledge, as the result of knowing, is itself something within experience—though not, as I shall try to show in the sequel, a body of propositions and concepts as these are commonly envisaged.

In other words, for the spiritual pluralist knowing and knowledge do not consist in the discovery of something which lies 'outside' the monad, but are in the nature of a creative, or at any rate developmental, process within the monadic experience itself. As a matter of fact, this is one of the advantages of a theory of monads, for in such a theory certain formidable difficulties which face the realist do not arise at all.

Of the difficulties which a theory of realism involves two are perhaps outstanding, related respectively to the two fundamental types of realism. In one of these types some kind of distinction is preserved between the 'mind'—also variously referred to by such terms as 'subject,' 'percipient,' and so on—and its 'objects.' The latter are again variously conceived, but nowadays the general tendency is to identify them with such things as sensa, existing independently of the perceiving mind though they *may* be perceived as 'sense-data,' rather than with material objects as commonly conceived. But whatever the precise form taken by this type of realism its distinguishing feature is the separation of two independent kinds of entity, one of which perceives while the other is, or can be, perceived.

Now, apart from the fact that experience, which in one way or another is our sole source of knowledge, can hardly itself provide evidence of the existence outside experience of something of a kind which is in fact always apprehended within the content of experience, it seems to me that the type of realism just described is faced with another, though related, difficulty of a serious nature. This arises from the great variety in the possible kinds of sense-experience. In human experience we not only have the main varieties of 'normal' sensation corresponding to the different 'senses,' we also have the deviations from these occurring in certain 'abnormal' conditions in the form of distortions, illusions, hallucinations, and so on. Moreover, there seems little reason to doubt that forms of life widely removed in nature from human beings—insects, for example—have some kind of sense-experience of their own—but equally there also seems little reason to doubt that this sense-experience is likely to differ greatly in some respects from human sense-experience. Are we then to suppose that there exist, independently of any percipients, sensa corresponding to all the various kinds and modifications of existing sense-experience, and also, moreover, to other kinds of sense-experience which might possibly be developed? The introduction of the idea of the 'intervening medium,' which would include the brain and sense-organs of the percipient—an idea sometimes used by Bertrand Russell [1]—as a means of explaining at any rate some of the variations in sense-experience, does not seem to me to dispose of the difficulty. It describes the facts in a certain way and interprets them in terms of correlation between different forms of sense-experience—*e.g.*, sight and touch—but it leaves us still with the difficulty of the number and kinds of different varieties of independently existing sensa which, on the theory of realism, must be assumed in order to account for the facts and the possibilities of sense-experience.

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[1] See, for example, *Our Knowledge of the External World* (Allen and Unwin, 1926), pp. 78*ff*

It might, of course, be said that the types of sense-experience which can be developed are limited and conditioned by the types of sensa existing independent of—and antecedent to—sense-experience. But such an idea seems to me to be so unconvincing in the light of what we know of the nature and variety of sensa, and to place such arbitrary restrictions on the possibilities of sense-experience, that I imagine few people would feel able to accept it. Moreover, experience itself, which is our only source of evidence, provides no reason whatever for believing this idea to be valid. The truth is that the divorcing of sensa from the experiences of which they form the content is quite artificial; sense-experience is not to be pictured as something in the nature of a sweeping searchlight picking out independently existing objects from a surrounding dark unknown, but as a process consisting essentially in the steady development, modification, and—in certain respects—creation of a unitary whole.

The other type of realism, which has been advocated in one form or another by such thinkers as Ernst Mach, William James, and Bertrand Russell, is of a very different character. It has sometimes been called 'neutral monism,' for it regards the substance of reality as fundamentally singular in quality and in the nature of sensa. In one kind of arrangement a series or group of sensa constitute a 'physical' object, or, if such a description be preferred, a set of 'physical' events. Another kind of arrangement constitutes a 'psychical' entity or 'mind,' or a set of 'psychical' events, ordered in a time-series. This is but a brief and bald account of neutral monism, but it is, I hope, reasonably accurate.[1]

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[1] See, for example, Bertrand Russell's *The Analysis of Matter* (Kegan Paul, 1927), Chapter XXXVII.

Now it seems to me that neutral monism fails to explain a fundamental fact which if left unexplained is fatal to this type of realism. It is the fact that a 'mind'—or what I have called a 'monad' or 'monadic experience'—is patently a distinct unitary whole. If reality, in the context of our present discussion, consists of nothing but sensa or sense-events how comes it that the latter fall into these definite unities? What is the *ground* of this fact? It cannot lie in the sensa themselves, or if it does we must conceive them in a way very different from that in which the neutral monist conceives them. We cannot, in fact, escape from the necessity of holding that an essential characteristic of a sensum is to be part of the content of an experience, and this is fatal to the theory of neutral monism. Moreover, it should be pointed out that all the sensa from which we construct concepts of physical objects are in fact parts of experiences, so that the immediate apprehension of sensa within the content of experience is the primary fact, while the notion of 'physical' objects and events is altogether secondary and derivative; nor do the propositions of physics require for their truth such a continuity of real entities as would involve the existence of sensa not forming part of an experience, but only a continuity of *possibilities* of sense-experience. I have already referred to this last point, and shall return to it later with a fuller explanation.

Monadic pluralism is not faced with the task of meeting difficulties of the kind I have been discussing, for they do not arise at all for it. Instead of taking as the basic constituents of the world entities corresponding to derivative concepts such as those of sensa and sense-events, monadism is based upon a fact of immediate awareness or apprehension, namely the existence of a unitary individual experience. It is true that, for reasons I have given, the monadist cannot develop his metaphysic without assuming the existence of other unitary experiences, or monads. But in making this extension he is only assuming the existence of a type of entity of the existence of one example of which he is immediately certain. It might therefore well be claimed that monadism is more realistic than metaphysical 'realism' itself.

Realism and kindred theories, such as neutral monism, seem to imply that the 'realities' are something like the content of experience, but that in experience they 'appear' rather different from what they really are. Hence the unity—or, as realists prefer to call it, the 'continuity'—of experience is regarded as the appearance of what is really a rapid sequence of discrete—or at any rate in some sense separate—events, rather on the analogy of the cinema film, where what is really a rapid sequence of separate 'shots' appears as a continuous process. And again, so-called 'distortions' or unusual features in sense-experience are held to be due to some interposing causal agency (*e.g.*, Russell's "intervening medium") which produces in experience appearances which are in some ways like, in other ways unlike, the 'real' sensa.

Surely this is putting the cart before the horse. Realism starts with such things as sensa, which are assumed entities, and then works in two opposite directions. In the one direction it tries to show how the characteristics of sense-experience arise from the nature and relations of these entities, while in the other it tries to show how from these relations concepts such as those employed in mathematical physics and in the various sciences are constructed. For monadism, on the other hand, starting as it does with the immediate fact of experience, the fundamental question in theory of knowledge is as to how, *in experience*, concepts such as those of 'events,' 'sensa,' and so on arise, and, at a later stage, concepts such as those of 'material particle,' 'electron,' 'photon,' 'quantum,' together with all the apparatus of field physics. More precisely, epistemology is for monadism concerned, not with the investigation of such developments in experience considered as a genetic process—that is the business of psychology—but with the fundamental significance of these developments. I suggest that this approach is more logical and more appropriate than that of 'realism.'

Monadism makes considerable use of the concepts of 'activity' and 'interaction.' Activity is regarded as an essential characteristic of the monad, and monads are said to 'interact' with one another. Something should therefore be said about these concepts, to which I have already referred briefly.

The concept of activity has been frequently and severely criticized, and attempts have been made to show that activity is not 'real.' I find it difficult to understand this criticism or to attribute any significance to it. Terms such as 'perceiving,' 'imagining,' 'thinking,' 'doing,' 'making,' 'moving,' and so on, mention facts which are matters of immediate experience. 'Activity' is simply the general term referring to the common element in such facts of experience, which might be called a feeling of 'agency.' I admit that the use of the last term begs a question to some extent, but my point is that this term and the others convey meanings which are immediate, and are covered by the term 'activity.' 'Activity' is therefore just the name we give to certain factual characteristics of monadic experience. I cannot see how it could in any way be regarded as inappropriate, or why it should be criticized.

What I have called the feeling of agency is an essential characteristic of experience, but there is another essential characteristic to be considered. In agency there is the feeling of determining in some ways the features of the monadic experience concerned. But equally there is the feeling that some features of that experience are determined by factors other than this agency. There is a feeling not only of acting but of being acted upon, and this description again refers to a fact of immediate experience. Moreover, assuming the existence of other monads, and, from occurrences within the given monadic experience, assuming that the apparent communicability with some of these others is yielding significant meaning —a point which it will be necessary to consider later—it must be concluded that definite relations exist between the agencies of different monads. 'Interaction' is just the general term covering these relations.

I have now completed my outline of the general metaphysical theory which forms the background to my discussion of the topics with which I shall be dealing. As I have said—and as I hope it will be seen in the sequel—the assumption of this theory is not necessary to the subsequent arguments; but the fact that I hold it may sometimes help to make clearer to the reader portions of the argument which would otherwise be obscure. Moreover, I shall try finally to relate metaphysics to the conclusions reached in epistemology and theory of knowledge.

CHAPTER II

General Theory of Knowledge

At the beginning of the previous chapter I referred to the tendency of modern philosophy to concentrate on problems of epistemology and theory of knowledge, and the development of these in connexion with questions of language and meaning and the general problems of semantics. A survey of the relevant literature reveals a growing complexity which is almost bewildering, and tends to produce in the mind a query as to whether there may not be something artificial about the whole business; the complexities being, at least to some extent, not a reflection of fact but the product of ways of thinking about fact. Philosophy is perhaps chasing its own tail.

The problem of knowledge raises the difficulty immediately and in an acute form. In the consideration of this problem there appears not infrequently to be an implication that knowing and knowledge involve the relation of some entity—a 'mind,' 'knower,' 'subject'—to a reality which it observes or perceives and reflects upon. In other words, there is a tendency to represent the situation as if the knowing entity and the reality which it knows were in a sense independent of, or 'external' to, one another. I suggest that such a conception of the situation is altogether wrong. Knowing and knowledge are themselves constituted by processes and products which are integral components of reality, indeed, as I should say, of experience. The question is, therefore, not one as to how, and with what significance, the 'knower' comes to know a reality which is, as it were, outside him, but rather as to how those integral components of experience which we call 'knowing' and 'knowledge' arise and develop in experience, what their place and function is in experience as a whole, and what is the significance of the processes involved.

The type of fallacy which is illustrated by the invalid conception of knowledge which I have mentioned I will call 'the fallacy of pseudo-transcendence.' I believe it to be widespread in philosophical thinking, and to lead to many of the intransigent difficulties to which that thinking frequently leads. In particular, it seems to me to occur in discussions about such questions as freedom, moral responsibility, the nature of physics (especially in connexion with what might be called 'observational interference'), and the nature of time. I quote these examples as showing the wide variety of fields in which this fallacy may arise. I think its effect is so important that I should like to make some general comments on it before proceeding with the more particular discussion of knowledge and reality.

The Fallacy of Pseudo-transcendence

Let us suppose that a situation exists which, on reflective analysis, seems to involve as integral components certain factors A, B, C, etc. Now, the fallacy of pseudo-transcendence consists in the attempt to abstract one of these factors (A, say) from the whole situation to which it is integral and to conceive a relationship between it and the remainder B, C, etc., as if it could be regarded as in a sense transcending, or 'external' to, this remaining complex, which is otherwise unchanged. But the fact is that in such a case the factor A enters so pervasively into the situation as a whole, as an integral component, that not only is it difficult to give significance to its abstraction but even if this were possible the remaining complex would be fundamentally changed by the abstraction.

In a somewhat different form of the fallacy, an attempt is made to conceive a relationship of a factor A to the *whole* situation A, B, C, etc., as if A could in a sense be regarded as transcending the situation while at the same time entering into it as a component.

I shall not pursue further here the setting out in general terms of the nature of the fallacy of pseudo-transcendence, for it is such that when stated in these terms it almost inevitably exhibits a certain obscurity. This obscurity may be dissipated to a considerable extent by particular illustrations, and these will be forthcoming later in this chapter and in those which succeed it.

Knowledge and Reality

Discounting the effects of the fallacy of pseudo-transcendence and proceeding instead from the fact that what we call 'knowledge' is really constituted, not by the external relation of some entity to reality, but by a process within reality, the problem becomes clearer and simpler.

It is quite common to speak of experience as the only source of knowledge. But this phraseology is somewhat misleading, for it still seems to imply that knowledge is the relation of some factor within experience—such as the 'subject' or 'knower'—to something outside or beyond experience. This is, however, an inaccurate account of the situation, as I have already pointed out. In the process called 'knowing,' what really occurs is certain types of experience—or, if you like, sequences of events of a certain type within experience. It is these which constitute knowledge, and not a relation of experience to something outside it. There is a sense in which knowledge might be said to be the relation of one part of experience to another part of experience, a sense which will, I hope, become clearer in the sequel. But the fundamental fact remains that knowledge and knowing consist in certain types of experiential events, and that such phrases as 'knowledge about' and 'thinking about' are apt to be misleading through their apparent implications, no matter whether the 'aboutness' is taken to connote an external relation of experience to something outside it or that of one part of experience to another part of experience.

The real problem of epistemology is therefore not that of the relation between 'knowledge' and 'reality' as commonly understood, but rather the question as to the part which certain types of occurrence play in experience, how such occurrences arise, and why they take the forms they do. The further metaphysical question as to the ultimate significance of such occurrences is part of the wider question of the significance of experiential events in general. It is not included in epistemology proper, though epistemology may be able to throw some light on it, a point which will be considered in due course.

Put another way, we might perhaps say that knowledge is not 'of' or 'about' an 'external' reality, but consists in certain aspects of the processes and products of thinking as a constituent of experience, and this will be a convenient standpoint from which to proceed in developing the next stage of the inquiry.

Thought and Thinking

In considering that aspect of experience which is indicated by such terms as 'thought' and 'thinking' one can of course speak only in regard to one's own experience. In what follows, therefore, I shall in fact be describing what seems to me to occur in my own experience, and it is for the reader to determine how far it corresponds with the kind of thing which occurs in *his* experience. In so far as differences of opinion or belief arise in a matter of this kind, these can only be resolved —if at all—for each disputant by his assuming that the experiences of different people are similar in respect of certain fundamental characteristics and then trying to determine how the various parties concerned are using language in relation to these characteristics.

There occur in my experience processes of sensing and imagining which have, respectively, for their content what are called 'sensa' and 'images.' Although I do not believe that process, or 'act,' is separate or separable (except perhaps in reflective analysis) from content this is not a question I wish to raise here, nor is it relevant to the present discussion. At what is commonly described as a 'higher level'—which really seems to mean at a later level of experiential development—there occur what are called 'thought processes' or 'thinking.' The investigation of the precise nature of thinking and its development as a genetic process in the individual and the race is a matter for psychology and not epistemology. I am therefore only concerned here with the general characteristics of the process and their significance for theory of knowledge.

Now I find that my thinking consists in certain sequences and patterns of images—images of sensa, including such forms of sensa as visual and auditory words, numbers, and other symbols. I am assuming for the moment that the broad meaning of the term 'symbol' is understood and accepted, though I shall return to this.

Now in the process of thinking the sequence and pattern of images is usually fairly clearly defined in part, but in part consists of an accompanying rather vague associative background. The important point, however, is not the relation between the vague and the distinct, which is again a matter for psychology, but whether in thinking there is any other kind of content apart from that of images. The question which here arises has been traditionally answered by asserting that thinking involves a process called 'conceiving,' or the formation of 'concepts.' Now I can only say that I cannot discover in the content of my thinking anything different in kind from images to which a distinctive term such as 'concept' should accordingly be applied. This is not a question for long discussion, for it is a matter of direct introspective apprehension. Such introspection leads me to assert that images, including essentially images of symbols, are alone involved in the content of thinking; and I should therefore go on to say that the process described as the formation of a concept simply consists in the establishment of a certain pattern of images, instances of which occur from time to time in the individual experience concerned involuntarily, as we say, or by voluntary evocations for a specific purpose. The image-pattern which constitutes a concept is generally integrated around the image of a word, or set of words or other symbols, which forms its relatively distinct core. The investigation of the construction of such a pattern, and of the conditions under which it occurs in experience from time to time—'comes into consciousness' would be an older way of describing this—are further matters for the consideration of psychology and not epistemology.

The suggested abandonment of the notion of a concept as something different in kind from an image or a pattern involving images alone does not disturb me, for I believe it is possible to get along perfectly well without it, as I shall try to show. If this is indeed so, continued adherence to the notion of a concept as a distinct type of entity would contravene one of the generally accepted canons of philosophical discussion, which adjures us to dispense in such discussion with all 'unnecessary' entities. But it is clear that in this consideration of concepts we are hovering around matters of wider import, namely, the nature and being of universals and the relation between universals and particulars, and to these matters I will now turn.

The Problem of Universals

Opinions, both past and present, as to the nature and being of universals exhibit an extraordinary range and diversity. This diversity relates both to quality and quantity, for not only do philosophers disagree as to what kind of things universals are, but also, curiously enough, as to the number of universals which it is necessary to assume in order to frame a satisfactory theory of knowledge and reality. On this last point opinions vary from the belief that the number of universals is very large, and perhaps infinite, to the belief that we can get along with the assumption of only a few universals, and perhaps none at all. Individual philosophers have not infrequently changed their opinions in this respect as their thought has developed. Bertrand Russell provides an interesting example of this, for, starting from a Platonic type of theory, with its innumerable archetypal 'ideas,' or universals, he appears to have reached a position in which he thinks that we can dispense with all but a few universals, and perhaps retain one only—'similarity,' or 'identity'—and he is indeed hesitant over the whole question of the being of universals.[1]

It should be pointed out that whether there are few or many universals is a question quite different in certain important respects from the question as to whether there are *any* universals or none at all. The position which I myself shall try to maintain in the sequel is that there are no real entities—real in any significant sense—'corresponding to' the term 'universals,' that the assumption of such entities is unnecessary for philosophy, and that in fact such an assumption has been the root cause of most of the difficulties and complexities which have arisen in this connexion, and in particular of some of the standard paradoxes.

My chief reasons for rejecting universals, or 'eternal objects' (to use Whitehead's phrase), are briefly that I cannot see how it is possible to give any significance to their supposed type of being, usually termed 'subsistence'; that, even if this were possible, universals must for ever be unapprehended—only their particular instances and the symbols which 'represent' them being apprehended—and finally, that I cannot in the end see any reason for their subsistence. I will consider these reasons in turn.

To assert that there are such entities as universals and that they have a special type of being termed 'subsistence' seems to me to beg the question completely. As it stands, the sentence which makes this assertion is just a series of sounds or visual marks. In particular, what significance can we give to the word 'subsistence'? We can significantly speak of the 'being' of anything which is apprehended by us—that is, which forms part of our experience—and we usually call this being 'existence.' The term 'subsistence' is just an invented symbol to indicate some other supposed type of being. But how can we give significance to the being of something which is not apprehended? I am aware that it is sometimes said that we *do* apprehend universals in our experience, but I can nowhere find any convincing, or even definite, statement of the reasons for this assertion. If a green patch, for example, occurs in my experience I can significantly say that this green patch has being, but I am apprehending a particular, and I can see no reason for saying that I am at the same time apprehending a 'universal' to be called 'green.' It seems to me that the onus of showing with precise reasons that we do in fact in such a situation apprehend something to be termed a 'universal' which has a type of being of its own lies with those who make the assertion. If it be said that we cannot frame intelligible philosophical theories without some *assumption* of this kind, I should challenge this. But I will deal with that particular point a little later.

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[1] For these extremes in Russell's thought compare respectively the relevant passages in his *Problems of Philosophy* (Williams and Norgate, 1912) and in *An Inquiry into the Nature of Meaning and Truth* (Allen and Unwin, 1941).

If we suppose for the moment that, as I hold, we do *not* apprehend universals in our experience, I should say that we cannot take any step towards giving significance to the being of universals without attributing to the latter some definite characteristics. I do not mean such characteristics as might be supposed to be implied by saying that a universal *resembles* its particular instances, for this evidently does not help at all, since it really comes to saying that a universal is just another particular. This seems to me to be the difficulty in that notion of universals which is embodied in the Platonic 'idea' as a kind of archetypal model of its particular instances. For surely such an archetype, laid up in some kind of celestial realm, would itself be a particular. Some evidence that we are forced to such a conclusion is, I think, shown by the fact that certain philosophers, evidently aware of the difficulty of giving significance to the being of the Platonic ideas, have supposed them to be in the 'mind' of 'God.' This does not seem to have been the view of Plato himself, although there has been some disagreement in interpreting his belief on this point. But clearly if the ideas *were* supposed to be in the mind of God then, in any appropriate meaning which could be given to this, they would again have to be regarded as particulars.

Somewhat similar to the archetypal view of universals is the belief that the latter are what have been called 'pure essences' embodying the common nature or attribute of their particular instances. But all that is symbolized by such verbal terms as 'pure essence' and 'common nature' is the occurrence of particular, concrete, experiential situations in which there are certain elements of similarity. The obvious reply to this is that it implies the subsistence of at least one universal, namely, the relation of similarity. I do not believe that this follows at all, but I shall consider the point when I come to discuss the final position towards which some philosophers who hanker after universals have felt themselves to be driven, namely, that although it may be difficult to defend the subsistence of such entities as universals on the lavish scale contemplated in traditional philosophy we are at least compelled to admit the subsistence of *one* universal. Meanwhile it is sufficient to say that there seems good reason to hold that if the case for a single universal such as 'similarity' or 'identity' can be refuted the whole argument for universals falls to the ground.

It is sometimes held that the case for universals of relation is stronger than that for universals of quality; and it is then argued that if we have to admit that there are universals of relation we might just as well go on to accept those of quality as well. But I cannot discover any stated reasons which establish the case for universals of relation more soundly than that for universals of quality; for sentences including words which symbolize relations again simply symbolize the occurrence of particular experiential situations in which there are 'common' or 'similar' elements, although the latter are different in kind from elements of quality. Once more, therefore, we are brought in the end to consider the case for the subsistence of the universal of similarity.

If we leave aside such supposed attributes of universals as are implied in the archetypal or the pure essence views, the difficulties of which I have been considering, and inquire as to what are the characteristics to be attributed to *all* universals as such, apart from a so-called 'resemblance' to their particulars or a nature constituted by the common 'essence' of the particulars (whatever all this may mean), we are faced with a further difficulty. For the supporters of universals always seem to describe them by negatives. Thus they are said to be 'timeless,' 'non-material,' 'non-mental,' and so on. But it is surely evident that no significance can be given to the notion of an entity which is described in negative terms alone.

I come now to the crucial point in this connexion—namely, the subsistence of a universal corresponding to the term 'similarity.' It is necessary to preface the discussion of this by a brief reference to the usage of certain terms which are important in this context.

The first of these terms is 'present,' as it occurs in connexion with the experience of an individual. I do not propose to attempt to define this term precisely; indeed, I doubt very much whether this is possible, for I think we have here an ultimate. But the term conveys something quite definite to me, and I shall therefore assume that it does the same for others. I would, however, point out—and I think this is important—that there are three shades of meaning which, in effect, fuse in the significance of the term 'present.' The first occurs when I speak of something being 'present' in my experience; the second, when in analysis of experience a sensum or image is spoken of as being 'present' to a percipient or subject; the third, when the context is that of temporal relations. I am inclined to think that these various shades of meaning of 'present' really come to the same thing, but I shall say more about this in a later part of this chapter when considering the significance of the reflective analysis of experience and also certain aspects of the problem of time. But I need not pursue the matter further for my immediate purpose.

The other, and related, term to which some preliminary reference should be made is 'compresent'; but here all I can say is that when I speak of certain elements in my experience as being 'compresent' I mean that they are 'present together,' the latter phrase conveying something quite definite to me, which I shall assume that it does also for others. But I would add that in my usage of the term 'compresent' the togetherness is simply togetherness within the same specious present, and by no means implies location at the same point in the spatial field of that specious present.

When speaking about thought I recalled that in all such matters as are under discussion one can speak only with regard to one's own experience. Whatever my terminology, this egocentric position has been implicit in all that I have been saying, but I shall revert to it more precisely in considering the question of similarity.

In the first place, I find that in situations in which I use the term 'similar' as appropriate I am really comparing elements in my experience which are compresent. These elements may, for example, be sensa or images or both. What I have said is true even when the sentences which I think or speak or write refer to the past. Thus, if I assert that a certain green patch which is present in my experience is similar to another green patch which was present in my experience yesterday I am really comparing a now-present sensum with a now-present memory image. In spite of the form of the sentence in which I may make the assertion, the actual 'judgment' of a relation of similarity is between two compresent elements. Not only do I find this to be a fact in my experience, but I would go further, and say that, from the very nature of the case, the assertion of similarity must *necessarily* refer to elements which are compresent. Any further reference to elements which are not present cannot be sustained, though it may be possible to regard it, in a certain sense, as a 'probable inference,' a point which I shall consider in the sections of this chapter on 'probability' and 'time.' In any case, what I in fact assert—

and can only assert with certainty—is similarity between compresent elements.

I would next say that the assertion that there are two or more similar particulars in my experience does not imply or require the existence of what is called a 'universal.' For the sentence —whether thought, spoken, written, heard, or read—in which the assertion is made is itself a particular, and on every occasion on which the sentence is thought, spoken, written, heard, or read, it is a particular.

Three points then arise. The first is the contention sometimes made that the attempt to dispense with a universal of 'similarity' leads to an infinite regress such that in the end we are compelled to admit the subsistence of the universal. Thus it is said that if on one occasion two patches of green (say) are asserted to be similar and on another occasion two other patches of green are asserted to be similar this implies that between these two relations of similarity there must also be a relation of similarity, and hence we are forced into an infinite regress. But I should say that, if there be an infinite regress, it does not arise from the facts but from the faulty way in which we think about and try to symbolize them. For in the example taken each of the sentences in my experience asserting similarity between the members of the two respective pairs of green patches is a particular, and if in my experience there also occurs a sentence asserting a relation of similarity between the two relations of similarity, this is also a particular. The process *may* of course go on to any degree, but always the contents of the experiential occurrences are particulars. Each of these occurrences is existent and complete in itself, and those who assert that we are driven into a vicious infinite regress reach this conclusion only because they are really all the time begging the question by the concealed implicit assumption that there must be something—beyond the particular experience—'corresponding to' the symbols—whatever form these may take—which occur as particulars in the experience. I deny the necessity for this assumption.

The second point—and it is of much the same nature—relates to the occurrence of two sentences of the same type—*e.g.*, both spoken or both written—asserting similarity between two particulars. These two sentences will themselves be asserted as similar—and, incidentally, this will come up later in connexion with prediction—but they must then be compresent, for reasons I have given. But the assertion of similarity between the two sentences will itself be a particular, and we are no more driven into an infinite regress here than in the previous case.

The third point is concerned with the assertion of a similarity between two particulars by sentences of different types—*e.g.*, one spoken and one written. This refers back to a more general question, namely, that of 'equivalent' but dissimilar sentences; for example, sentences in different languages having the same meaning. The position commonly taken is that such sentences 'express' one and the same 'proposition'; the latter 'corresponding to' a fact. A proposition is thus regarded as a kind of universal, an entity independent of and beyond the sentences expressing it and the particular experiences in which these occur, and this is sometimes held to be a very strong argument in favour of the subsistence of such entities as universals.

I will take the case of the translation of a sentence from one language into another as typifying the basis of the kind of argument raised in this connexion in support of the subsistence of propositions as independent 'objective' entities beyond the particular sentences which 'express' them. About the existence of the sentences there is no doubt—their occurrences are immediate facts in the experiences of individuals. Now it is asserted that if a sentence *A* in one language translates into a sentence *B* in another there must be a proposition *P* which, though expressed by the sentences, is independent of them and subsists outside and independently of the experience of any individual. I can see no reason for this. The only argument that I can think of which might appear to have some force here is that without assuming the subsistence of *P* it is not possible to give significance to the statement that *A* and *B* have the same meaning. This of course raises explicitly the whole question of meaning which has been hovering in the background during a considerable part of this discussion. I will deal with this question shortly, when I shall try to show that the most appropriate usage of the word 'meaning' by no means requires that the occurrence of sentences in experience should imply the subsistence of propositions which they express. For the moment I will only remark that those who hold this view about propositions might just as well argue that the conversion of pounds into dollars necessarily implies the subsistence of a transcendent universal 'coin' which is 'expressed' by so many pounds or dollars. In this analogy I am of course speaking, not of symbols and their relationships, but of the actual pounds and dollars themselves. They are concrete elements in the experiences of individuals, they fulfil the required functions, they are 'communicable' from one individual to another, and it is quite unnecessary to assume anything beyond them in the nature of a 'universal' coin of which they are different expressions.

Other arguments in support of the subsistence of propositions as distinct from sentences occurring in experience are for the most part in the nature of appeals to the 'common' element in sentences having the same meaning. I have dealt with this type of argument in my general discussion of universals. It is, however, perhaps worth adding that much play is sometimes made in this connexion with the great influence of 'ideas,' both within an individual experience and in communication from one individual to another, and it is held that this implies the subsistence of ideas as universals beyond the occurrence of their particular instances in the experiences of individuals. To use the currency analogy again, this seems to me like arguing that the existence of concrete pound notes (say) in the possession of individuals, and their influence and 'communicability' from one individual to another, necessarily implies the subsistence of a universal transcendent pound note. The analogy must not, of course, be pressed beyond its relevance in this context; for example, when currency passes from one person to another one's gain is the other's loss, but this is not the case with ideas.

It is perhaps necessary to make one or two points here about similarity. I shall not try to define the term; indeed, I am inclined, at any rate provisionally, to take similarity as something ultimate. But the statement that certain elements in my experience are similar has a quite definite significance for me, and I shall assume that the same holds for corresponding statements in the case of other people. Furthermore, it seems to me to be a matter of immediate apprehension that similarity admits of degrees, from complete qualitative identity, in the sense of no discernible difference, downward over an indefinite range. There are also different types of similarity—qualitative, relational, and so on—but I shall not discuss these as they do not affect the general argument.

Incidentally, this matter of continuous gradation of similarities and differences (*e.g.*, as in shades of colour) raises ancillary difficulties in connexion with the subsistence of such entities as universals. For are we to suppose that there is a separate universal corresponding to every shade and nuance in experience of every type—and, indeed, in experience of every *possible* type—human and other? Again, what are we to say, for example, of certain animal cries and noises which evidently have some significance? Are there universals corresponding to them? I should not go so far as to say that difficulties of this kind are ultimately of a *logical* nature, but they clearly raise so many awkward points as to provide an additional reason for getting along if possible without assuming the subsistence of universals. The fact is that the realm of universals, or 'eternal objects,' is as it were a static world of distinct and separate entities, whereas the world of concrete experience is dynamic and continuous—an integral unity. I find it difficult to see how real being can be ascribed to the former, or how it can enter into an intelligible relation to the latter.

It is relevant here to consider the view of some of the protagonists of universals that these inhere in experience and are identical (not simply in quality but as actual entities) on the occasion of every such inherence. It would follow from this view that if, say, two qualitatively similar green patches were compresent in my experience the identical universal 'greenness' would inhere in both. The difficulties thus raised in connexion with numerical identity are apparent, and I do not see how they are to be avoided on any intelligible significance of the term 'universal.'

With this I will conclude my explicit discussion of universals. But its results will be implicit in much of the sequel, where one of my tasks will be to show how it is possible—and, as I think, necessary—to get along without the assumption of universals. I shall consider first the question of symbols, and various matters relating to this.

Symbols, Meaning, and Reason

Symbols are a certain kind of sensa and images occurring in experience; or perhaps it would be more correct to say that they are sensa and images having a certain kind of relationship to other, non-symbolic, sensa and images. We have in fact to distinguish and consider two types of relation; namely, the relations of symbols among themselves and the relations of symbols to other elements in experience.

It is not easy to define a symbol, though the term is generally understood. Definitions in terms of such words and phrases as 'representing,' 'standing for,' 'signifying,' and so on, are not much help, for these words and phrases themselves require definition, and the difficulty is only put back a stage. It is perhaps more effective in the first instance to deal with symbols by denotation, and by regarding them as not defined but exhibited through the situations in which they occur, and through their function in these situations. The commonest symbols are words and numbers; but symbols are characterized by wide variety and range. They may be relatively arbitrary or especially appropriate. Moreover, a type of experiential element may sometimes be symbolic in one situation and non-symbolic in other situations.

The most important thing about symbols is that they occur as a result of processes within experience. It is for psychology to investigate the nature of these processes, both in the individual and in the race. For epistemology the only relevant point of prime importance is the fact that symbols occur as the result of such processes. Association plays a prominent part in the latter, and every symbol carries with it, for each individual in whose experience it occurs, a mass of associations—of which it is as it were the focus—arising from the experiential process which has produced the symbol. The detailed nature of these associations in the case of 'identical' symbols—*i.e.*, similar instances of a symbol—varies from the experience of one individual to another, a point to be considered shortly in connexion with meaning.

Primitive symbols, in the case both of the individual and of the race, such as significant noises made by animals and very young children, seem to be more or less spontaneously 'evoked,' a point on which the various theories of the origin of language are generally agreed, though similarity and association play some part from the earliest stages. At higher levels symbols become more arbitrary and conventional in nature; while at all levels the *learning* of established symbols of various kinds, —for example, by young children—proceeds largely through indication and association. But, as I have said, these are *in detail* matters mainly for psychology, and have not much relevance to epistemological theory.

In considering the development of sequences and patterns of symbols within experience, which in the end constitute the processes of thought, the common use of the term 'abstraction' is apt to be misleading. For the term seems to imply that the basic content of experience consists of separate and isolable elements to which labels may be attached. I have given reasons in more than one connexion for regarding this view as wrong. The symbols and symbol patterns which occur in thinking emerge from integrated continuous processes within the unity of experience. We do not in actual fact 'abstract' by separating out distinct elements in experience and affixing symbols to them.

Whitehead has advanced the view that there are two oppositely directed processes of abstraction; namely, abstraction from actuality and abstraction from 'possibility.'[1] It is of something in the nature of the former that I have been speaking. On the other hand, the realm of possibility is in effect the realm of universals, or 'eternal objects,' as Whitehead prefers to call them, and the term 'possibility' here means that there stands in the essence of an eternal object a patience for relationships to actual occasions.[2] But I must, with respect, refrain from following up this view, as it depends fundamentally on a theory of the subsistence of universals or eternal objects which I have already given reasons for rejecting. I would, however, venture to point out that views similar to those of Whitehead seem to leave no room for the essential uniqueness of individual particulars, a uniqueness which is implied in the use of the word 'particular.' For if the whole content of an experience consists of a selection from possibilities determined by the realm of eternal objects, it looks as if all such contents should be capable of description in *general* terms. It would be no reply to say that even though the elements of an individual experience may be constituted by the ingression of eternal objects the patterns of relationships among these elements are unique, for these relational patterns are themselves held to be eternal objects in the hierarchy of such objects.[3] It becomes difficult indeed to distinguish between the *contents* of the realms of eternal objects and actual experience respectively, and to relate these two realms intelligibly; and the statement that, in actual experience, the non-spatio-temporal eternal objects are prehended in a spatio-temporal framework adds to the difficulty. But it is quite probable that I have misunderstood Whitehead, as he can hardly be described as readily understandable on these matters. In any case, I believe that all the difficulties and complications can be avoided—and without adding fresh ones—once we make up our minds to do without universals or eternal objects. The question of the meaning of symbols is relevant here, but first something must be said of the way in which symbols are arranged.

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[1] See, for example, his *Science and the Modern World* (Cambridge University Press, 1926), Chapter X.

[2] *Op. cit.* (English edition), p. 199.

[3] See Whitehead, *op. cit.*, pp. 200 *et seq.*

Where symbols occur in experience not casually but in a systematic context they are arranged in sequences—as in a sentence or in a line of mathematical symbols—or in patterns, as in a determinant, to take a mathematical example. I will use the word 'pattern' to cover both these types of arrangement. We may construct such patterns ourselves; that is, the experiential processes which result in patterns of symbols may be accompanied by that sense of 'agency' to which, as an element in experience, I have already referred, just as changes in the non-symbolic contents of experience are frequently accompanied by the sense of agency as in so-called 'manipulative,' 'constructive,' or 'creative' processes. On the other hand, we may apprehend symbol patterns which we regard as constructed by others, notably in the reading of books.

The systematic arrangements of symbol patterns are determined by three kinds of rules; namely, grammatical and syntactical, empirical, and logical. The grammatical and syntactical rules refer mainly to verbal language, though there are analogous rules of the same type for numerical and mathematical symbol patterns. Empirical rules result from observations of processes within experience which are systematized in bodies of 'knowledge,' such as the sciences. Logical rules apply to the arrangement of symbol patterns irrespective of the particular experiential processes from which these patterns emerge. Each of these types of rule is characterized by special and important features, which must now be briefly considered.

The grammatical and syntactical rules affecting the arrangement of symbol patterns vary from one people or race to another. The processes which have produced them are a blend of the biological, psychological, and historical, which are, of course, interwoven. Indeed, the grammatical and syntactical rules are in fact defined as those which have emerged from processes of this kind. From the point of view of epistemology they are, as regards their particular forms, relatively arbitrary and contingent; but their variations, together with the variations of symbols themselves from one language to another, serve to bring into prominence certain epistemological problems with regard to meaning which will be discussed shortly.

What I have called the 'empirical' rules affecting the arrangement of symbol patterns are those determining the particular content of sentences, and analogous non-verbal symbol patterns which make statements about processes in the various fields of experience. Such statements may refer to particular instances or they may take the form indicated by such phrases as 'general principle,' 'natural law,' and so on, in which case they are really statements about symbols.

The last point raises a matter which may well be mentioned at this stage of our discussion. It concerns the so-called 'hierarchy of languages.' As I have pointed out, symbols occur primarily as a result of experiential processes involving non-symbolic elements. This primary complex of symbol patterns has been called the 'object language.' But the symbols of the object language are themselves sensa and images in experience, and from experiential processes involving these sensa and images there emerge further symbols and symbol patterns which form a system of a kind which has been called a 'metalanguage.' Evidently this generation of languages can and does go on indefinitely, resulting in a hierarchy of metalanguages each of which—to use a common but, as I have already pointed out, somewhat misleading term—is more 'abstract' than the metalanguage below it in the hierarchy. I do not propose—nor is it necessary—at this stage to consider the question of metalanguages in further detail, though I shall refer to it from time to time if and when the context demands. Here I will only stress two points which are important for epistemology. The first, which is generally accepted, is that no linguistic expression (that is, symbol pattern) 'refers to' the language in which it is contained but only to a language below it in the hierarchy, expressions in the primary language —the 'object language'—'referring to' the non-symbolic elements in experience from which it emerges through experiential processes. The second point, which is by no means so generally remembered and carried to its resulting conclusions, is that at every stage of the hierarchy the elements involved—the 'symbols'—continue to be sensa and images within experience. It is the hypostatization of certain entities—called 'concepts,' 'universals,' 'propositions,' and so on—supposed to 'correspond to,' or to be 'expressed by,' the symbols which (as I have already urged and shall continue to urge) is the source of many of our epistemological difficulties.

Whatever the particular syntactical and empirical rules of the arrangement of symbol patterns in any given case, there are certain other rules, applicable to *all* cases, which must be followed if the complex of sequences and patterns of symbols is to be marked by a certain highly important characteristic. This characteristic is called 'truth,' and the 'logical' rules of symbol patterns are those determining in all cases the possession of this characteristic, whatever may be the syntactical and empirical rules obtaining in the particular cases. When a complex of symbol patterns is characterized by truth the sentences and analogous non-verbal symbol sequences occurring in the complex are said to be 'true.' More precisely, logical rules apply to the relation of the truth characterization of one part of a symbol complex to that of another part, rather than to the whole complex considered as complete and self-contained. Further consideration will be given to the nature of logical rules in the next section, where the question of truth will be discussed.

When the sequences and patterns of symbols in the form of images which constitute thinking follow the logical rules they are called 'reasoning,' and the thought-processes are then said to be 'rational.' Whether the results of such processes are characterized by truth depends not only on the correct following of the logical rules but also on whether the empirical rules appropriate to the particular context have also been correctly followed. When the course of the thought-processes is determined largely by factors other than the logical rules—*e.g.*, emotional factors—the processes are 'non-rational,' while if they directly infringe the logical rules they are 'irrational.'

We have now to consider one of the most difficult and important of the issues relevant to theory of knowledge, namely, the use of the term 'meaning.' I want in the first place to distinguish clearly between 'definition' and 'meaning.' A 'definition' is the translation of a symbol or symbol pattern into another symbol or symbol pattern. In principle it is the translation of symbols whose meaning is unknown—either because they are arbitrary and newly adopted or because some of the parties concerned are ignorant of them—into symbols whose meaning is known. Hence the definition of a symbol or symbol pattern, while related to meaning, is not itself a meaning, though it is commonly but inaccurately described as such. Definition only puts the problem of meaning back one stage; in the end the meaning of symbols must arise from something which is non-symbolic.

There is no such thing as *the* meaning of a symbol or symbol pattern, no matter whether the symbols concerned are words or non-verbal, for if there were it would imply that reality could be split up into separate, precisely distinguished elements which were the same for all individuals, and to each of which a label in the form of a symbol could be attached. But reality, which is constituted for us by experience, certainly cannot be split up in this definite way. Meaning is something which arises within the individual experience, and is therefore relative to the individual concerned. It is clear, of course, that there must be a sense in which the meanings for different individuals of similar instances of a symbol or symbol pattern approximate to one another to a greater or less degree, a sense determined by the fact that part of the experience of every individual consists in what is for him relatively orderly and intelligible communication and intercourse with other individuals. I say 'relatively,' for nothing is more obvious than that people of all intellectual levels use the same words with different meanings—though the differences vary in degree—and that this is one of the prime causes of disorder and conflict in human relationships. That the same words have different meanings for different people is evident not only in such realms as those of politics and economics, as well as in everyday life, but even in the realm of philosophy, though it is the peculiar business of philosophers to try to use terms with precision. It does not require a very searching scrutiny of the records of philosophical controversy to make it plain that a far from inconsiderable part of this controversy arises because different philosophers are using the same words with different meanings. It is, indeed, a common complaint of the philosopher that what he has said has been misunderstood, and this is true even in the case of those philosophers who are generally acclaimed for their lucidity and conciseness of expression. It is odd and significant that a philosopher who seems to us so lucid that we feel we *really* understand what he means may yet regret—and not infrequently—that he has been misunderstood. It is true, of course, that some of the difficulties arise through differences in the *definition* of terms rather than in meaning proper, but such differences, in so far as they can be disentangled—not always an easy matter—from differences of meaning are much more readily exhibited and reduced.

Differences of meaning such as I have been considering are of course inevitable in view of the way in which meaning arises. What, then, *is* 'meaning'? I can, of course, only say how I propose to use the term, at the same time claiming that such use is appropriate and sufficiently congruous with the kind of thing commonly going on in people's minds when they speak of 'meaning' as to render defensible my use in this context of that term rather than of any other term.

I should say, then, that the meaning for an individual of a symbol or symbol pattern is a fusion of three closely interrelated elements—namely, the experiential situations in which the symbol or symbol pattern first emerges, the experiential situations which thereafter evoke from the individual the expression of the symbol or symbol pattern, and the consequent system of associative imagery, feeling, emotion, and action which forms around the latter. It is evident, then, why the meanings of symbols are bound to vary to a greater or less extent from one individual to another.

I am inclined to think that this variation in meaning tends to be least at the two extremes of the hierarchy of symbols. Many—perhaps most—of the symbols of the object language, which emerges directly from non-symbolic experience, seem to have practically the same meaning for everybody, so far as we can judge from observations of behaviour, or at any rate for every member of some well-defined and closely integrated group—perhaps because of the direct relation here of the symbolic to the non-symbolic. At the other end of the hierarchy the symbols of the metalanguages of high order which are used in the fields of mathematics and certain of the sciences, such as mathematical physics, have in general practically the same meaning for all those who deal with them. The reason for this is perhaps the converse of that which obtains in the case of the object language, for the symbols of the higher metalanguages are remote from non-symbolic experience, and, as a result of their function and the way in which they are constructed by those who use them, tend to be divested of the variable association complexes, much of which is non-symbolic, adhering to the symbols of the metalanguages of lower degree. Indeed, mathematicians and theoretical scientists are mainly concerned with definitions and other rules for determining symbol sequences and patterns and translating one set of symbols into another. Meaning in the basic sense which I have described is hardly involved here.

On the other hand, differences of meaning for different individuals operate significantly not only in the symbols of the metalanguages of lower order used in such fields as those of history, politics, economics, psychology, and sociology but also—though possibly to a less extent—in the symbols of the metalanguages of certain sciences, such as biology and even the less 'abstract' parts of physics. Thus it may well be that the meaning, in the sense in which I use that term, of such words as 'wave,' 'particle,' 'field,' 'electron,' and so on, is not—indeed cannot be—just the same for all scientists, and this variation in meaning may, and probably does, influence the way in which scientific hypotheses are constructed, discussed, and developed. But I will leave any further elaboration of this point until the consideration in later chapters of particular fields of knowledge and study.

The nature of meaning, and the distinction between meaning and definition, is of fundamental significance for philosophy. If the views I have put forward in this connexion are sound, it would follow that much, perhaps most, philosophical argument is not really about the nature of definite and distinct actualities which, though they may be imperfectly and variously defined, exist independently of the disputants, but about the usage of symbols in relation to one another and in relation to their emergence in experience from non-symbolic content. Some such opinion has often been expressed in one form or another, but not always on these or similar grounds.

Let us take as a fairly typical example in this context the question as to what is 'the good.' Strictly speaking, this question has no meaning as it stands, for there is not some actuality to which the symbol 'good' is *necessarily and inevitably attached*. The significant questions here are "What is the definition of 'good'?" and "What is the meaning of 'good'?"

The first of these questions refers primarily to something quite arbitrary. For 'good' is initially just a noise or a mark.

Definition is then an arbitrary rule for translating a certain symbol pattern into a symbol consisting of this particular noise or mark. The symbol pattern which is thus translated will differ for different individuals, and the argument is really about what symbol pattern is to be used in the translation and whether agreement can be reached on this—it is not about the nature of something which is *necessarily* labelled with the noise or mark 'good.'

But those involved in the argument about definition will inevitably be brought back in the end, either implicitly or explicitly, to the second question; namely, as to what is the *meaning* of 'good.' Now the meaning of 'good' for each of the individuals concerned will be the situations in his experience from which the term has emerged, the associations which it has gathered in the process, and the experiential situations which evoke the use of the term by him. Not only, therefore, will the meaning of 'good' vary to some uncertain extent from one individual to another, but again it is clear that we do not have here an actuality which is independent of, or 'beyond,' or 'outside,' individual experiences to which the particular term 'good' is inevitably affixed. What we have is the relation of one element in experience—the occurrence of the symbol 'good'—to other elements in experience, a relation which will differ to a greater or less degree from the experience of one individual to another.

It might perhaps be urged at this juncture that the views I have expressed recoil on me, for, apart from general difficulties which they appear to raise in connexion with communication from one individual to another, what, in particular, is the point of writing a book? I cannot deal with this question adequately till I have considered, in the next section, the problem of 'truth.' But, as a preliminary though incomplete answer, I would say that the systematic expression of a symbol pattern—in thought, speech, or writing—may result in certain circumstances in imbuing the experience of the individual concerned with a kind of feeling which is satisfying to a greater or lesser degree, and that in writing a book or otherwise expressing himself the individual hopes or believes that he will communicate a similar feeling to others. But I am aware that I am using several terms which will have to be considered in the further and more complete discussion of the issues involved. Here I will only add that the 'satisfaction' to which I have referred is not merely in the act of expression but much more in the nature of what is expressed, and is closely related, as I hope to show, to the nature of 'truth,' in what seems to me to be an appropriate usage of that term.

As regards the general question of communication from one individual to another, we have to ask what it is in the experience of an individual which constitutes such 'communication.' Briefly, I should say that there are in my experience certain elements which I call the 'bodies' or 'bodily appearances' of 'other people.' From time to time there are associated with these bodies the making of sounds and marks similar to sounds or marks which my own body makes. All this is, of course, within my experience, and much of it constitutes what I call 'language' in 'speech' or 'writing.' If the sounds or marks made by others have meaning for me—that is, if they are similar to the sounds or marks which I should myself make in experiential situations which I can imagine, though not *necessarily* in the actual situations in my experience in which the other people make them—I should say that the sounds or marks are 'intelligible' to me and that 'communication' has taken place. If the expressions of others are in fact similar to those which I should myself employ in the actual situation I should use some such term as 'agreement' for this element in the experience. Intelligible communication from others, as an element in my experience, thus involves the meaning for me of the expressions which occur, but not necessarily agreement in the sense that I should myself use those expressions in the actual situation.

This brief account of 'communication,' as I use the term, is sufficient to show that it is for each individual a matter entirely within his experience, and it is only thus far that theory of knowledge is strictly involved. Further questions as to the existence of other people as entities outside the experience of the individual concerned raise problems of a metaphysical nature, which I shall try to deal with in due course in the chapter on metaphysics. But—speaking for the moment in terms which assume the existence of others, in order to avoid intolerable circumlocution—difficulties arise (and I have already referred to them) because one can never be quite sure how far symbolic expressions have the same meaning for others. For reasons I have given, it is certain that there will be some differences in the meaning of the same symbols for different people, but these differences may be much greater than appear on some of the occasions when the symbols are expressed. On such occasions there may seem to be agreement, but sooner or later developments within the experience of those concerned will bring out underlying disagreement in regard to meaning.

All this could have been expressed in terms of the experience of a single individual, but only, as I have said, at the cost of much circumlocution. This does not, however, affect the point I am trying to make, which is that the kinds of difficulty which arise in connexion with communication are not such as to imply that the views I have advanced in regard to meaning would make the occurrence of communication unintelligible, but are rather of a practical nature leading to misunderstanding—not always immediately obvious—and consequent conflict. That such misunderstanding and conflict are in fact widespread is apparent, and is itself evidence of the appropriateness of what has been said about meaning. Indeed, disagreement about meanings, whether evident or concealed, is perhaps one of the chief causes of trouble in the world, and the philosophical field is itself greatly affected by it. The importance of eliminating disagreement as far as possible needs no stressing, but it should be clearly realized that in the long run this can be achieved only by agreement among those concerned on the *experiential situations* in which the use of the particular symbols involved would be regarded as appropriate, whatever these symbols may be.

A brief reference to the question of different languages may be in place here. The fundamental fact is that, for various reasons which are readily intelligible, the same experiential situations which have come to evoke the expression of certain symbols by one group of people have come to evoke the expression of different symbols by other groups of people. Thus the same or similar meanings are expressed by different symbols by different groups, rules then being constructed through experience for translating one set of symbols into another. In principle this does not differ from translation within a single language through what we call 'definition,' nor from the translation of sound symbols into visual symbols. In particular, as already pointed out, the existence of different languages is no argument for the 'subsistence' of universals. But the fact that there *are* different languages, the symbols of which have emerged from different experiential processes, greatly intensifies the difficulties arising from differences in the meanings of symbols.

I will conclude this section with a reference to an alleged paradox which has attracted a good deal of attention, and which is very relevant in the present context as illustrating some of the pitfalls—as it seems to me—which await us in the consideration of questions of meaning and definition. The paradox is the so-called 'paradox of analysis,' and in stating it I will use what has now become almost a standard example. The argument runs as follows. The concept 'being a brother' is identical with the concept 'being a male sibling,' or, alternatively, to be what is called a 'brother' is the same thing as to be what is called a 'male sibling.' Therefore, if in any statement containing 'male sibling' the term 'brother' is substituted for the latter the resulting statement will be the same as, or 'equivalent to,' or will convey the same information as—and there is generally some lack of precision here—the original statement before the substitution. Hence, if we make the substitution in the statement with which the argument started we are left with the conclusion that the statement that to be a 'brother' is the same thing as to be a 'male sibling' conveys the same information (or whatever corresponding form of words we like to use) as the statement that to be a 'brother' is the same thing as to be a 'brother.' But it is clearly unlikely that anyone would hold that these two statements do in fact convey the same information.

Now this seems to me a prime example of the machine running away with the man, the resulting endless discussions being an unnecessary waste of time and thought, to the considerable disadvantage of philosophical study. For statements are sequences of symbols, and we ourselves produce the symbols and make the rules governing their arrangement in sequences and patterns. Therefore, if we get a silly result it is because somewhere some inappropriateness of usage is involved, or because we have made a stupid rule, or both; moreover, we may have added a dash of unjustified hypostatization which makes the confusion worse confounded.

Now in the present case it is surely clear that the original statement that to be what is called a 'brother' is to be what is called a 'male sibling' is really a statement about the definitions of the symbols brother and male sibling. It arises from a rule about the translation of the symbols into one another, a rule which is certainly in part arbitrary ('sibling' is a comparative newcomer in our language), though it may be mixed up with natural and spontaneous emergence from non-symbolic experience. It is quite different in kind, for example, from such a statement as that a brother is a member of a family, which is not just a rule for translating symbols. If we then go on to make another rule that, if there is a rule translating symbol *A* into symbol *B*, then *any* sentence containing *A*—including the rule of translation—remains the same in effect, and particularly in the information it conveys, if we substitute *B* for *A*, we are at once in trouble. But the trouble arises not because a real paradox is involved, but because we have made a stupid rule, or at any rate a combination of rules which is stupid. In the case of a rule of definition all that we can properly say, so far as equivalence is concerned, is that if, in the kind of sentence which is characterized by a truth-value, one symbol is substituted for the other the truth-value (true or false) of the sentence remains unchanged.

We must also be careful not to confuse a rule of definition such as that a brother is a male sibling—*i.e.*, a proposal to call what is called a 'brother' also a 'male sibling'—with the statement that (the word) 'brother' is (the word) 'male sibling,' a statement of factual type which is false.

Again, although we may adopt a rule of definition for translating 'brother' into 'male sibling,' the *meanings* of these two terms are certainly not precisely the same. They will have emerged from different experiential processes, collected different associations, and will indeed not always be regarded as equally appropriate in a given situation. I mention this as a reminder of the consequences which follow from the manner in which symbols arise in experience, and I am led thereby to my third point, which is that the difficulty is further complicated by the introduction into the original argument, either implicitly or explicitly, of a certain amount of unjustified hypostatization. This is in the form of suggestion that there are 'universals' associated or identical with 'concepts' (according to the way in which the terms are used) which are real entities indicated by the symbols 'brother' and 'male sibling,' and which 'subsist' independently of the symbols and of the experiences in which the symbols arise. These 'universals' would also be identical with one another if there is a rule which translates 'brother' into 'male sibling,' though in this view the rule is rather regarded as a statement giving an 'analysis' of the concept involved. Now, apart from the general arguments which I have advanced against concepts and universals, in the commonly accepted sense, it seems to me to follow in this particular case from what I have said about meaning and definition in connexion with the terms 'brother' and 'male sibling' that to hold that there are subsistent entities corresponding to these terms is a gratuitous and quite indefensible assumption, and that this is so whether we speak of a universal corresponding to the different particulars 'indicated' by the symbol 'brother,' or of a universal corresponding to the different instances of the symbol itself.

The argument I have just been discussing is an example of the kind of paradox, which I mentioned before, which is resolved—or rather, shown to be unreal—if the views which I have been urging in regard to universals, definition, meaning, and other cognate topics are well founded. What I am suggesting is that the difficulties are not real ones arising from the nature of things but artificial difficulties arising sometimes from the way in which we construct our symbolism. Discussions of the paradox of analysis, for example, are no doubt interesting exercises for some people in the manipulation of symbolism, but I see no reason to think that the paradox leads to any practical difficulties or that anything of vital importance results from its discovery or depends upon its resolution—though it is always satisfying to tidy up our symbolism as much as possible. But at this point I must pass on to a consideration of truth and its relations to knowledge and belief.

Truth, Knowledge, and Belief

"What is truth?" is another of those questions which, strictly speaking, have no significance as they stand. For the word 'truth' is simply a symbol, and the significant questions are those as to how this symbol is defined—that is, what are our rules for translating it into other symbols—and what is its meaning for us. Again, I can only state my own usage of the word 'truth' and its meaning for me—nor can anyone do more—and this is quite in order provided my usage is at least sufficiently congruous with what appears to be the usage of other people to make it not inappropriate for me to employ the word 'truth' in the context of my discussion rather than any other sound or mark. I shall, however, put my question initially in the form, "What are the characteristics of those sentences in regard to which I should use the term 'true'?"· and I can then only hope that my usage of 'true' will seem to the reader a satisfying one.

I should call a sentence 'true' when it exhibits each of three characteristics, which are in fact reminiscent respectively of the three traditional theories of truth, the 'correspondence,' the 'consistency,' and the 'pragmatic' theories, though, as will be seen, my usage of terms is far from identical with their usage in the common statements of these theories.

The first characteristic is really not so much something which is required to make a sentence true as rather something which is required to make a sentence the kind of thing to which the term 'true' can appropriately be applied when the meaning of that term is considered in relation to the whole situation involved. It is that the sentence concerned has emerged within the experience of an individual, and in that sense, *but only in that sense*, might be said to 'correspond' to other elements in that experience.

I wish to emphasize the limitation, which I have just indicated, of this so-called 'correspondence.' If we like to call the elements in experience from which the sentence has emerged—or some more or less arbitrary selection of those elements—a 'fact,' then the sentence might be said to correspond to fact, though it must be remembered that the occurrence of the sentence in experience is in this usage itself a fact, from which, generally in combination with other experiential elements, other sentences may emerge. But here I would urge as a particular point that there is no ground whatever for holding that what is often called the 'structure' of sentences, or of language in general, may give information about the structure of fact, whether this fact is taken to be experiences from which the sentences have emerged or any other supposed 'reality.' The whole question is thereby begged, since such a ground could only be conceivable if we could apprehend directly not only the structure of the sentences but also the structure of the non-symbolic experience from which the sentences have emerged, it being assumed that 'structure' implies the existence of a whole of related parts.

In any case, we cannot speak significantly of the direct 'apprehension' of the structure of non-symbolic experience; we can only say that 'structure' is itself a symbol among other symbols emerging from such experience. On the other hand, if we use the term 'fact' somewhat differently by saying, as has sometimes been said, that facts are what make sentences (or 'propositions') true, then this is simply a rule of definition connecting the various symbols involved, and no question arises of any further relation between something labelled 'fact' and something labelled 'truth.'

The last point leads me to draw attention to my usage throughout of 'sentence' rather than 'proposition.' The reasons for this will, I hope, be clear from my discussion of universals. Sentences are the actual symbolic occurrences in experience, and to say that there is a proposition is simply to say that a number of similar sentences occur in experience; it is not to say that there is some 'subsistent' entity independent of experience and of the particular sentences which occur therein. Sentences, in my usage, are the particular sentential utterances, marks, etc., and not some further gratuitous 'subsistent' entities intervening between these and propositions, the unnecessary assumption of which would simply raise the old difficulties over again.

The two other characteristics of what I shall call 'true' sentences are closely related, and I shall treat them more or less together. They are respectively concerned with what I shall call 'compatibility' and 'incompatibility' and with what I shall call 'verifiability,' which is closely connected with the common notion of 'prediction.'

An important point which now becomes apparent is that the characteristic of being true cannot be significantly ascribed to a single completely isolated sentence. Even a sentence referring to something which we should regard as immediately given—*e.g.*, "I am now seeing a round green patch"—involves, as regards its truth, other sentences containing the terms in it as some of their constituents. I should therefore call a sentence 'true' only if, among other things, it was one element in a system of sentences which were, as I should say, 'not incompatible' with one another.

I shall shortly develop this line of argument further, especially with regard to the usage of the term 'incompatibility,' but I wish first to say something about 'verifiability.' As the meaning of a sentence can only be in terms of experience it follows that to have meaning a sentence must be verifiable—at any rate in principle, for verification is something which occurs, and can only occur, within experience. Indeed, the verification of a sentence, or the experiential situation which constitutes the verification, is involved in the meaning of the sentence, and therefore truth, being a characteristic of sentences, must involve verifiability. The meaning of a sentence referring to the past is something which is present, and the verification of such a sentence is also something which is present.

As for the usage of the term 'verification,' it is often held that the verification of a sentence is a comparison of the sentence with some experience which it 'signifies' or to which it 'refers.' But I think this is misleading. I should say that verification consists in the comparison of two sentences—and I am here using 'sentence' in a rather general sense for any symbol pattern of which the term 'true' might appropriately be used. Now, a sentence is verified only if the potentially verifying experience evokes a 'judgment'—that is, a sentential pattern of words or other symbols which may be (and often is) a thought pattern. For if no judgment of any such kind occurred within the experience of the individual concerned the sentence could hardly be said to have been 'verified.' Moreover, direct comparison can only be made between experiential elements of the same type. Thus symbols may be directly compared but we cannot significantly speak of a direct comparison between symbols and non-symbolic content. This is readily seen by considering a single word; for example, 'green.' The word 'green' can be directly compared with other instances of the word 'green' or with instances of (say) the words 'blue' or 'red,' but there is no meaning in the comparison of 'green,' *as a symbol* and not as a mere noise or mark, with the non-symbolic experience of greenness or blueness or redness. In cases where a symbol, considered not as a symbol but simply as a particular sensum, is similar to the non-symbolic sensory experience which evokes it we might significantly speak of a comparison, but only a comparison between the symbol as a mere sensum and the non-symbolic experience.

There is one other condition for comparison between experiential elements, and that is that the elements should be *compresent*. We do not—and from the nature of the case cannot—compare an element which is present with one which is past; we compare compresent sensa or a sensum and a compresent memory-image of a past sensum. In verifying a sentence, then, we compare for similarity a memory-image of that sentence compresent with a sentence evoked by the verifying experience. In particular, in what is called 'prediction' we express the prediction in the form of a sentence (in my present extended sense of the word) and then in due course compare a memory-image of that sentence with a sentence evoked by the verifying experience. That is the kind of comparison which occurs, and must occur, in verifying a prediction, whether we are reflectively conscious of it as such or not.

It is clear then that, just as the experiential situations which give meaning to a sentence must be present, so the situations which verify the sentence must also be present; but the type of verifying situation varies with the circumstances. For example, the meaning of a sentence with an historical reference arises from present situations involving historical writings, utterances, or records, together with the associated present imagery. Any verification of such a sentence must arise from present situations involving similar elements. This brings out an important point in connexion with verification; for, in the example given, what we are actually doing is ascertaining the consistency of the sentence in question with other sentences arising from present experience in the historical field. As in the case of truth itself, therefore, verification is not of a single isolated sentence, but of a symbol system of sentences. This is a general characteristic of verification, though it is brought out most clearly by examples like the one above.

A curious point now arises. A sentence may be verified, but subsequently the sentence itself, and the sentences arising from the verifying situations, may no longer be regarded as true. This is well illustrated in the case of sentences derived from scientific principles. For example, sentences arising from observations in connexion with gravitation which occurred before the coming of the theory of relativity were frequently verified, but, with developments in observational methods and apparatus and the associated substitution of Einstein's for Newton's laws of gravitation, neither the original sentences nor those arising from the verifying situations would now be regarded as exactly true. Hence neither the truth nor the verification of a symbol system is ever certainly final and complete. Further experience may require us to modify the system in order to make it more comprehensive in dealing with experience. All that we can say at a particular time is that a given system has proved effective in dealing with experience till then. I shall say more about this later when considering further the nature of truth.

I have said that the meaning—and therefore the truth—of a sentence involves its verifiability, *at any rate in principle*. But for a sentence to be *accepted* as true, as distinct from false or doubtful, verification must actually occur. How far and in what sense we can significantly speak of a particular sentence as true, apart from its actual acceptance as true by the individual in whose experience it occurs, is doubtful, and whether we should use our terms so that truth involves actual verification or only verifiability in principle depends on the resolution of this doubt. I am inclined to think that the denial of universals and the substitution for propositions, in the traditional sense, of particular sentential instances makes most appropriate a usage of the term 'true' such that truth involves actual verification. My reasons for thinking this may perhaps appear more clearly in the subsequent discussion.

Before giving further consideration to that characteristic of a system of true sentences which I have called 'compatibility,' it may be well to say something at this point about the nature of logical 'principles.' The essential thing to notice here is that these principles convey no information and tell us nothing about the *meaning* of the terms used in them—that is, in my usage of 'meaning.' They are simply rules of definition or procedure relating to the arrangement of certain symbols and the translation of these into one another. This characteristic of logical rules is sometimes called 'tautology.' The rules are arbitrary in the sense that they are not something given as 'necessary' *a priori*; but on the other hand they have been developed in order to do a particular job. This job is in effect the handling of symbolic experience in such a way that the consequent responses lead to the making of appropriate adjustments in given experiential situations which may be themselves symbolic or non-symbolic. Alternative sets of rules can be devised for this purpose. The functions and processes involved are those associated with such terms as 'implication,' 'inference,' 'deduction,' and so on.

A study of any authoritative account of the theory of deduction will, I think, make it clear that the nature of logical principles is such as I have described. It will be seen that truth itself and the so-called 'truth-functions,' such as negation, disjunction, conjunction, incompatibility, and implication, together with various convenient symbols which are introduced, are simply being defined in terms of one another. It can be shown that the truth-functions are not independent and can in fact be reduced to one, a rôle for which 'incompatibility' is often chosen.[1]

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[1] For all this *cf.* Bertrand Russell, *An Introduction to Mathematical Philosophy* (Allen and Unwin, 1919), Chapter XIV.

It might well be asked how, if logical rules are arbitrary and circular, they nevertheless work so well, and why they have for us such a sense of necessity, or at any rate inevitability. The answers to these two questions are closely related. Logical rules work because, like any other tool, they have been made to work—that is, to perform a specific function. They have been framed in relation to the material upon which they are to work, and so have been made to conform by their very nature to the practical tests by which their efficiency is gauged. Moreover, it must not be forgotten that in applying logical rules to experiential situations—and particularly in relation to non-symbolic experience—we always have to combine with them non-logical rules; namely, the 'empirical' rules to which I have already referred. When, for example, an astronomer is led to predict the occurrence of an eclipse he is not only using logical rules of inference but also empirical rules which have emerged from 'observational' experience, together with a rule referring to that repetitive feature in certain aspects of experience which has been called the 'uniformity of Nature,' or by some equivalent name, and to which I will refer later in another context. As for the seeming inevitability of logical rules, I think this may well be explained by the fact that these rules constitute a most fundamental and general way of handling symbolic experience, a way which has developed in human experience from its very beginnings. Logical rules are not fixed and static principles given once for all as *a priori* and necessary. They have grown, and have been continually improved and developed in scope. Thus one notable phase in their development culminated in the Aristotelian logic which held the field for an unusually long period. But that logic is now known to be inadequate and inefficient in certain respects, especially in regard to the handling of relations, and the rules have therefore been modified and expanded accordingly.

The comparatively recent development of 'multi-valued' logics—that is, logical systems in which a sentence or proposition may have more than the two truth-values truth and falsehood (*e.g.*, 'indeterminacy')—illustrates very well the nature of logical principles. For it is clear that we are here dealing with conventions and rules of definition, and that the common two-valued logic is not essential, though for many purposes it may be the most convenient. This is interesting, for the principle of 'excluded middle' has often been regarded as one of the most clearly self-evident of logical principles; but it is now seen to be just as much a matter of convention and definition as any other logical rule.

I think a relevant analogy to the nature of logical rules is provided by such operational systems as, for example, the tensor calculus. The remarkable power of this calculus lies for the most part not in any information it provides—for it provides none—but simply in the particular notational system which it uses. This system is, of course, purely conventional, but it is so devised as to increase enormously facility in handling the material of symbolic experience in certain fields.

I have pointed out that a logical rule or principle does not in itself convey any information about the meaning of the terms in it. Yet it cannot of course be said that such a rule, considered as whole, has no meaning. Its meaning is in fact the experience from which it has emerged together with the experiential situations in which it is used. Moreover, although a logical rule does not itself give any information as to the meaning of the separate terms in it, these terms, like any other symbols, will naturally have meaning arising from the way in which they occur in experience.

I have said that definition is not the same as meaning, and although a definition, being a rule of translation of terms into one another, will provide occasions for associating the meanings of those terms, it does not and cannot completely identify the meanings. The purpose of the definition, as a factor in handling symbolic material, is something different; but I wish to consider this after the completion of the discussion of the criteria of truth.

To come back, then, to the third of my criteria of the truth of a system of sentences, which I have called 'compatibility,' I will approach this from the negative side by considering the *meaning* of the 'incompatibility' of sentences.

At this point it is necessary to introduce explicit reference to that fundamental factor in experience which we call 'feeling,' and—in its association with a particular experiential situation—'feeling-tone.' Although hitherto my explicit references have been mainly confined to such elements in experience as sensa and images, there have been several contexts in which feeling has been implicitly concerned. In particular, feeling is of course a most important element in the experiential factors, including association, which are involved in the meanings of symbols. But I shall now try to show that in the end we are led to take feeling as an essential criterion of the 'truth' of a system of symbol patterns of which verbal sentences are one type.

There occurs from time to time in our experience a sense of what is called 'conflict.' This comes about when various elements in experience tend to evoke other elements in the form of differing 'active responses' which cannot in fact occur simultaneously—that is, they cannot be compresent—in experience. Here 'response' simply indicates a familiar kind of associative sequence of happenings in experience, while I use 'active' in the widest sense to cover, for example, such extremes as bodily activity and thinking activity. The words 'tend' and 'tendency' indicate an essential feature of the situation in which the conflict arises. It is tendencies which conflict—*ex hypothesi* there cannot be conflicting actual responses. It is difficult to explain the word 'tendency' any further without begging the question, and I shall not attempt to do so at the moment, but shall assume that it carries for the reader a meaning sufficiently akin to the meaning it has for me to make what I am saying intelligible to him.

The detailed description and investigation of conflict is a matter for psychology. Here it is only necessary to note the unpleasant or painful tension—the various degrees of dissatisfaction, unease, discomfort, or pain—which characterize it. In contrast to this there are other occasions in experience when the responses which tend to be evoked are what we call 'harmonious.' Harmony in experience is characterized by a sense of appropriateness and satisfaction, and the pleasurable feeling-tone associated with this.

I have spoken of conflict and harmony in relation to particular situations, but more generally, as the experience of an individual develops, they may come to pervade that experience as a whole. Indeed, the individual experience consists essentially in a striving for what is called 'adjustment'—that is, in the development of harmony—with its accompanying sense of satisfaction, well-being, and fulfilment, among the elements of experience; and it must be remembered that adjustment consists, not merely in adaptation to what is regarded in experience as the influence of 'external' agencies, but also in the bringing about of conditions in which the individual's own activity can find adequate expression and fulfilment.

The existence of harmony and conflict are of fundamental importance for philosophy in general and epistemology in particular, and I shall frequently have occasion to refer to them in the sequel. I shall consider their nature further in the appropriate contexts, and shall also discuss certain terms which I have here taken for granted, in particular such psychological terms as 'pleasure' and 'pain.'

Symbol patterns, including verbal sentences, evoke various responses, and I am here speaking not merely of bodily responses observed by others, but of responses within the individual experience in which the symbol patterns occur. These responses will be of various kinds—bodily movement, imagery, thinking, and so on. When two symbol sequences or patterns set up conflicting tendencies I shall call them 'incompatible.' The responses involved may—and frequently will—be other symbol patterns, as in thought-process.

The third, and final, criterion of the 'truth' of a system of symbol patterns is therefore that the system, as a part of the experience of the individual concerned, should be the occasion of harmony in that experience. In other words, there should be no incompatibility, in the usage of that term just explained, between the various elements of the system. The whole complex of symbol patterns, and the non-symbolic experiences from which they emerge and in which they are used, should be such as to produce in the individual freedom from conflict and a feeling of harmonious adjustment and satisfaction. The production and manipulation of symbols in experience is, indeed, a highly important factor in bringing about adjustment.

For the individual, then, truth is not something which is 'known,' but rather something which is achieved. It is achieved up to a point if the sentences and other symbol patterns accepted by the individual up to that point are consistent or compatible in the sense that has been discussed, and are therefore productive of harmony rather than conflict. But experience leading to new symbol patterns may necessitate a revision of the whole system. Therefore the achievement of truth is, for the individual, something which grows and develops but is—at any rate, humanly speaking—never complete.

We cannot significantly speak of 'incompatibility' between any of the various facts of experience from which different symbol patterns emerge. Facts are what they are. On the other hand, symbol patterns do not, *in and by themselves*, contain any indication of, or information about, incompatibility. This is why it is necessary to look elsewhere for the criterion of incompatibility within such patterns. The criterion is found, as I have suggested, in the feeling associated with the response tendencies evoked by the symbol patterns.

At this point it may well be asked what is the relation between the three criteria of 'truth' which I have put forward. Each of them is, I should say, necessary but not by itself sufficient. The first criterion, the emergence of the symbol pattern within the experience of an individual, is, as I have pointed out, a necessary characteristic of the pattern if it is to be something to which the word 'true' can be appropriately applied. However, it is clearly not a sufficient criterion of truth. But it might be thought that the second criterion, verification, should itself, by its very nature, be sufficient without the addition of a third criterion. This is not so, for the sentences or other limited symbol patterns which are what, in fact, are ostensibly verified are not, and cannot be, really independent and isolated entities. They always form, within experience, part of a wider system of symbol patterns, the parts of which are related and gain their significance from their inter-relations. In verifying a sentence, for example, we are therefore verifying not merely that sentence but a whole symbol system of which the sentence is a part, and without which it would lose much, if not all, of its significance.

Suppose, on the other hand, we consider a whole symbol system. It might then perhaps be asked whether, if there is no incompatibility within the system, this should not itself be a sufficient criterion of truth without the addition of verification. There might be something to be said for this if we could suppose a symbol system to be absolutely complete, including all the symbolic material which could possibly emerge in experience, and this no doubt is the kind of idea behind those theories which regard truth as a complete and harmonious whole carrying its verification within itself. But if my line of argument has been sound it is clear that we can hardly give any meaning to the notion of such an all-embracing symbol system. Certainly it does not in fact exist. Actual symbol systems are limited, and though any one such system might be free from incompatibility within itself there is no guarantee that, in its attempted verification in a wider field, incompatibility may not occur, Indeed, this frequently happens. The history of science, for example, contains many examples of systems which are internally harmonious and have been partially verified up to a certain point. But then fresh facts are observed which fail to verify the system, and the latter has to be recast. We may conclude, therefore, that all three criteria of truth are necessary, and that truth is something which is gradually achieved, growing and developing within the experiences of individuals.

It will perhaps be objected that the view of truth which I have put forward implies that there is a different truth for each individual. I think there is undoubtedly a sense in which this is so, but to base an objection on it is to confuse truth with fact. Fact is what it is, and we cannot significantly speak of incompatibility within fact or of a difference of fact for different individuals, a point which I have already mentioned. But truth is a characteristic of symbol systems, and symbol systems occur as happenings within individual experiences. The occurrences of these systems are of course *facts*, but they must be carefully distinguished from the *characteristic*, truth, which the systems may or may not possess.

Now, symbol patterns do not, in and by themselves, contain any indication of internal incompatibility. To apply this criterion of truth or falsity the patterns must be linked with feeling, and with their meaning as constituted by the experiences from which they emerge. Thus it is quite possible for similar symbol patterns to occur in the experiences of two different individuals and to be true for one and false for the other because of certain differences of *meaning* in the two cases.

We are in fact brought back here to the distinction between definition and meaning. A main purpose of a definition is to facilitate the handling of symbolic material—*e.g.*, by substituting a single symbol for a group of symbols, or one symbol pattern for another which is less convenient in the particular context—and the rule here is that, if the definition is (say) '*A* is *B*,' the substitution in a symbol system containing *B* of *A* for *B* leaves the truth or falsity of the symbol system unchanged.

To illustrate the fact that a symbol pattern which is true for one individual may be false for another without contradiction, and at the same time to bring out the difference between definition and meaning, I will take a simple example from the social and international field. Consider the word 'democracy.'

Now, it is very probable that an American, an Englishman, a Frenchman, and a Russian would all accept, as a *definition* of the term 'democracy,' "government of the people, by the people, for the people." But the kind of experiences which would cause a Russian to say, "I am living in a democracy" would be very different from the kind of experiences which would cause an Englishman to make this statement. In other words, although the Russian and the Englishman might agree on the definition of 'democracy,' the meaning of the term for the two of them would be very different; and the same applies, in varying degrees, to the American and the Frenchman, in comparison with one another and with the other two.

As another important example, consider a trial for murder. Suppose *A* is accused of murdering *B*. Then the jury have to decide on the truth or falsity of the statement '*A* murdered *B*.' To simplify the issue, let us suppose that all are agreed on the truth of the statement '*A* killed *B*.' But the meaning of 'murder' in connexion with 'kill,' as it has emerged in the experiences of the jurymen in relation to kind and degree of provocation and of premeditation, and in relation to other accompanying circumstances, will certainly differ, and may differ considerably, as between the various members of the jury. Nor is the issue disposed of by appealing to the legal definition of murder, or to direction from the judge, for the meanings of the terms of the definition or direction will themselves be different for different people, not excluding the legal pundits. This is not only to be expected in the nature of things, but a survey of the operation of law and legal process provides ample evidence of it.

How, then, is it that legal process works at all, and works pretty well on the whole, and does not fall into chaos? The answer to this question is of fundamental importance in the present context. It is that the condition of ordered existence in a community is not identity of the meaning and the truth-value of similar symbol patterns for different members of the community but that the behaviour-responses—in the widest sense—of individuals to symbol patterns (leaving non-symbolic experience in itself out of account for present purposes) should be such as to produce a degree of harmony and freedom from conflict in the experience of the individuals—remembering that, within the experience of each, there are elements depending on his fellows in the community. Clearly, the degree of harmony will be related to the nearness with which meanings of the same symbol patterns for different individuals approach one another, and it might be held that complete harmony and absence of conflict would involve identity of meanings and of truth-values. But I think this only amounts to saying that, for a given individual, such identity just *is*, or would be, the complete harmony within his experience, and, more generally, the degree of approximation of meaning is, for each, the degree of harmony in the relevant field within his own experience. Even if there is what each individual would call 'agreement' on the usage of the word 'truth,' there is no such thing as '*the* truth,' as I pointed out at the beginning of this discussion, for this could only be if symbols and meanings were things independent of any individual experiences, whereas it is of their essence to be elements in such experiences.

I will conclude this discussion by drawing attention to a point which is crucial for all thinking, and especially for philosophical thinking, and which really crystallizes the results of our discussion. It is that for me, as for every one, the ultimate vital question in judging the truth-value of a sentence, symbol pattern, or symbol system *S* is, "What happenings in my experience would evoke from me the statement 'Yes, *S is* true'?" For without this linking of *S* to my experience I cannot properly or significantly speak of its truth or falsity, for it would be just a meaningless set of noises or marks. Take, for example, the statement "God exists." The 'truth' of this statement has no meaning for me, or for anyone, except in relation to the question "What sort of things happening to me (*i.e.*, to the individual concerned) would make me say, 'Yes, God certainly *does* exist'?" But the answer of a child to this question would differ very widely from that of (say) an advanced mystic, to say nothing of the different answers which would be given by people of different races and creeds. Indeed, we have here, I think, the source of the disputes and confusions—social, political, international, philosophical, and scientific—which characterize human life. Whether, in view of the nature of meaning and its essential relation to individual experience, a state of affairs could ever be reached in which every one would feel, from his experience, that 'agreement on meanings'—as he would call it—had been achieved seems very doubtful; but the realization of the existence of differences, and of the nature, causes, and consequences of these, would do much towards guiding behaviour towards a greater degree of adjustment, and therefore towards greater harmony in the individual and the community. The important question is not "What shall we believe?"—belief being expressed in symbols—but "What shall we do, and how shall we live?" The considerations which then arise will be very much to the fore in the discussions of the ensuing chapters, but there are a number of further points to be considered before embarking on these discussions. Some of these points are concerned with knowledge and belief.

I shall try to make clear in the following my usage of the term 'knowledge,' and the way it fits into the philosophical views which I am putting forward. My usage of the term will be seen to be different in some respects from that of other philosophers, but again I think it is sufficiently congruous with the general kind of way in which the word 'knowledge' is used to make it appropriate for me to use it in the present context rather than any other symbol. But, in the first place, I wish to make some comments on one of the most important of the distinctions which have been drawn in epistemological theory —namely, the distinction between what are respectively called 'knowledge by acquaintance' and 'knowledge by description.'[1]

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[1] For an early—and perhaps original—use of these phrases, and a full explanation of them, see Bertrand Russell's *The Problems of Philosophy*, Chapter V

'Knowledge by acquaintance' is defined as the kind of knowledge which we have about the things—such as sensa and images—which we immediately 'cognize' or 'apprehend,' or of which we are directly 'aware,' without any kind of intermediary. On the other hand, 'knowledge by description' of any entity is knowledge of truths—that is, knowledge of true statements—which connect that entity with something of which we are directly aware—that is, something we know by acquaintance. Knowledge by description therefore involves symbolic experience.

Now, while it is clear that the distinction thus made is of the greatest importance, the two things which are being distinguished are so radically different that I cannot help feeling it to be unfortunate that the same term 'knowledge' has been used in both cases. I think it would have been better to mark the distinction by two quite different terms, analogous to certain differences in other languages—*e.g.*, those between *connaître* and *savoir* and between *kennen* and *wissen*. For what is called 'knowledge by acquaintance', I shall therefore use the term 'acquaintance' alone, while reserving the term 'knowledge' solely for what is more congruous, if not precisely identical with, 'knowledge by description.'

After the closest consideration, it seems to me that all that we are asserting when we say that an individual *X* is acquainted with *A* is that *A* is a part of *X*'s experience; that is, part of that individual experience which we speak of as *X*'s. Strictly speaking, of course, I would not say more than that, for me, the only congruous and appropriate use of 'acquaintance' is to indicate the content of 'my' experience—no more and no less; that is, anything with which I say I am acquainted is just something which is part of my experience. But I shall not pursue this point further, for I think that it is one which, if accepted at all, would be accepted without detailed argument. With proper explanation I am, of course, entitled to use the term 'acquaintance' as I wish, but I am going further than this, and suggesting that the way in which this term is used by philosophers in general really involves only what I have stated above.

The next point to note is that neither knowledge nor acquaintance have meaning except in relation to the experiences of individuals; as the terms are used they do not name things which exist, or could exist, independently of the experience of any individual. I imagine that this statement would be generally accepted with regard to 'acquaintance,' whether or not the view put forward in the last paragraph is accepted just as it stands. But the statement applies equally to knowledge, for by the very meaning of this term, as it has emerged in experience, knowledge is always the knowledge *of* some individual; that is, it is a part of some individual experience—though not of course the same part as the part, with which the individual is 'acquainted,' which is connected with the piece of knowledge in the way already mentioned.

I shall call those symbol patterns in the experience of an individual which are true, in the sense and according to the criteria of truth already explained, the 'knowledge' of that individual. The individual is *acquainted* with these patterns as such, but in calling them 'knowledge' the reference is beyond themselves to their meaning as determined by their emergence and the circumstances of their subsequent occurrence in experience, including the associations which they arouse and the responses which they evoke.

Knowing, or knowing 'about,' is thus essentially a relation of one part of an individual experience to another part, and ultimately the relation is one between the symbolic content, which constitutes knowledge, and non-symbolic content. But there may be—and generally are—many intermediary relationships. For, as we have already seen, there is a hierarchy of levels of symbolic content, while symbol patterns, though they originally emerge from non-symbolic experience, also emerge from—and are used in connexion with—other experiential content which is itself symbolic. Hence knowledge may be knowledge about other symbol patterns or about non-symbolic experience. The fundamental point is that knowing is a relationship within the individual experience, and not that of some entity—the 'knower'—to an independent 'external' reality. I made a brief reference to the question of the 'subject' of experience in the first chapter, and I shall have occasion to consider this traditional notion in greater detail in subsequent chapters, in both a psychological and a metaphysical context.

If, however, knowledge and knowing are terms symbolizing something which is essentially within the experiences of individuals a question may be asked as to the position regarding a piece of knowledge about an event 'outside' the experience of the individual concerned, such as an historical event or an event news of which is communicated, in speech or visual symbols, by others. I do not think it requires much consideration to see that when the individual speaks of knowing about such an event he is only stating that a certain pattern exists in his experience, a pattern consisting of a set of symbols together with their non-symbolic associations in the form of imagery. Suppose, for example—to take an historical event or sequence of events—I read an account of the Napoleonic wars. I shall consider later the nature and status of historical events, and the meaning to be ascribed to the 'truth' of statements about them; but, leaving such matters aside for the moment, it is clear that there is no question of my acquaintance with the events of the Napoleonic wars. My knowledge about the latter will be a system of symbols occurring in my experience, and these symbols will of course arouse associated imagery and may evoke other responses on my part. But the whole matter will be within my experience—it can be symbolized entirely in terms of my experience, and its whole meaning arises, and must arise, within my experience.

The references I have made to associated imagining and other responses in connexion with knowledge indicate the essential function of knowledge—namely, to facilitate greatly that adjustment to life which is signalized by the feeling of harmony, satisfaction, and fulfilment in the experience of the individual concerned. This is so even in regard to the so-called pursuit of knowledge for its own sake. For the acquisition, development, and organization of symbolic content in experience—and it is in this that the pursuit of knowledge consists—itself satisfies a deep-seated impulse in the individual, and in that way directly contributes to his adjustment, apart from any more immediate application it may have in the handling of non-symbolic experience.

Although knowledge and thought increase enormously the scope of experience, and greatly aid adjustment at all levels of experience, we cannot of course assume that, wherever a process of appropriate adjustment is apparent, knowledge and thought (in my usage of those terms) are also involved. In the activities of non-human organisms of all kinds we observe what we regard as appropriate adjustments to environment, though we should hesitate in most, and perhaps all, such cases to attribute to the organism concerned any such experience as might include that symbolic content which is essentially involved in knowledge and thought. Having due regard to its general usage, perhaps the term 'skill' is the most congruous and appropriate to apply to that characteristic of an organism which consists in its ability to adjust its responses suitably to the environment in circumstances where symbolic experience—and therefore knowledge—are not involved. Of course, at certain levels in human experience knowledge and skill are closely interwoven, but there is, I think, a fairly clear distinction between them of the kind I have suggested.

Knowledge is not a substitute for acquaintance, nor does it in itself provide any kind of equivalent of acquaintance. It is a system of symbolic patterns in experience. The individual is acquainted with these patterns, and they evoke experiential processes involving both symbolic and non-symbolic content with which the individual is then acquainted. As for so-called '*a priori* knowledge,' it seems doubtful whether any distinctive significance can be given to this term; but, if this can be done, the term would presumably apply to those symbolic patterns which do not develop from sensory experience directly through the medium of the object language but which are rather constructions made within experience for the handling of symbolic patterns in general, analogous to any other kind of construction within experience for a definite purpose. I suggested a reason for the sense of 'necessity' or inevitability associated with these particular patterns when discussing the case of logical principles or rules.

Those symbol patterns which satisfy the criteria of truth constitute knowledge. But there are other symbol patterns which cannot be certainly seen to satisfy all the criteria of truth but which the individual may accept, more or less provisionally, as if they were part of his knowledge. These patterns constitute 'belief,' and the individual is said to 'believe' the statements in which they are expressed. But the consideration of belief and its associate 'opinion' is a matter partly of the definition and usage of the terms—which may vary within certain limits—and partly for psychology in regard both to the 'state of mind' of the individual concerned and to the part which the criteria of truth play in this. It is not primarily a matter for epistemology, and I shall not consider it further at this point, but shall turn now to a discussion of what is called 'analysis.'

Analysis

I shall not start by attempting a precise definition of 'analysis.' It will be sufficient for the moment to say that it is, in its general usage, concerned with the investigation of 'structure,' a term involving the notion of a complex whole or system consisting of interrelated parts. The structure of the whole in question is the pattern of relationships of the parts with one another and with the whole.

A difficulty at once arises here to which I have already drawn attention in other connexions. If the parts are to be regarded as definite entities it seems clear that they must be separate and isolable elements whose existence is not *necessarily* existence only as integrated within the whole. But it may sometimes—and perhaps always—be very doubtful whether this is the case, and especially whether one and the same element can be significantly considered as potentially capable of existence 'outside' and independent of a certain whole as well as of existence as integrated in that whole. This difficulty is particularly insistent in the analysis of experience, a point to which I shall return. In any case, it is clear that we are here faced with the question of the connexion between the symbolism in which structure is expressed and the non-symbolic material which is supposed to possess the structure.

The root cause of the difficulties and paradoxes which arise in discussions among philosophers of this question of structure and other questions connected with it seems to me to be the commonly held belief that 'corresponding to' the words and other symbols which occur in sentences and other symbol patterns there are definite non-symbolic entities which are 'denoted,' 'signified,' or 'indicated' by the symbols. From this it is often concluded that the structure of symbolism 'corresponds to,' or at least conveys some information about, the structure of non-symbolic entities. I do not accept this conclusion, nor the premise on which it is based, for, as I have suggested briefly in another context, the assumption of a 'correspondence'—by which is presumably meant some kind of correlation between symbols and non-symbolic entities—is both unjustified and unnecessary. It is unjustified because there is simply no reason to believe it, nor could the belief possibly be verified, for this would involve direct comparison between the symbolic and the non-symbolic. But the notion of such comparison begs the whole question at issue, for the comparison would only be possible if the non-symbolic entities, as precisely identifiable and determinate existents, and the pattern of the structure which characterizes them, were themselves directly apprehended; but it is just because this is not so that the problem of the connexion between the symbolic and the non-symbolic arises at all. On the other hand, the assumption of 'correspondence' between the structures of the symbolic and the non-symbolic is unnecessary, for, as in the case of the assumption that what are called 'universals' are real non-symbolic entities, one of the purposes of my whole argument is to show that we can get along quite well without it.

In developing the argument I shall here confine my attention to what occurs in experience, for if the case for 'correspondence' cannot be established in this field it certainly cannot be established in the field of what, *ex hypothesi*, must be outside experience.

I should say, then, that all statements about the 'form' or 'structure' of 'facts' involving non-symbolic entities really amount to no more than statements about the structure of symbol patterns. To take an example, suppose I say, "There is a circular blue patch to the right of a circular green patch." In this example I take a definite shape (circular) for simplicity, and for brevity I will symbolize my statement by *bRg*. Now, we can distinguish and isolate each of the symbols *b*, *R*, *g*, and regard the pattern of arrangement *bRg* as a 'structure.' But imagine the kind of non-symbolic experiential situation which would evoke the symbolic response-statement *bRg*. How in this situation is the supposed entity corresponding (say) to the symbol 'circular blue patch' or '*b*' to be precisely distinguished as a separate determinate entity? We should have to do something evoking some such symbolic expression as 'there is blueness in a circular expanse of the visual field with centre at such and such a point and radius so and so.' To fix the centre point we should have to assign co-ordinates, and this would mean fixing a point as origin. How are these points to be identified and distinguished? To define a point by means of 'enclosure series' of sensa, for example, only puts the difficulty back a stage, for if the definition is itself not to be regarded as expressed merely in terms of fictions the sensa forming the enclosure series must themselves be precisely distinguishable and determinate. The matter of the radius of *b* raises fresh difficulties. We should have to apply a measuring scale and express the result in a certain number of units. Moreover, even if all this could be done, we should still not have got away from symbols. Everything would be expressed in symbols, and the only structure directly apprehended would be the structure of these. Again, the relation *R* raises a different, but awkward, kind of difficulty. For, as in the last sentence, we can separate the symbol *R* from the symbols *b* and *g*; but, assuming that there are definite non-symbolic entities 'corresponding to' the symbols *b* and *g*, imagine (if you can) that these are removed from the non-symbolic experiential situation. What is left 'corresponding to' the symbol *R*?

The point I am trying to make may perhaps be clarified, and the difficulties some people feel in accepting it may perhaps be resolved, by considering the example of a map. It might perhaps be said that surely there are relations of structure between a map and what it maps. But I think such a statement is invalid. A map, apart from its visual purely sensory content, is a symbolic response-pattern to a certain type of experiential situation. There are structural relations of correspondence between the map and other symbolic response-patterns to the situation—*e.g.*, a description in words of what the map is said to map, or similar maps on different scales—but there is no more significance in speaking of a 'correspondence' between the map and the non-symbolic experiential situation from which it emerges than there is in using that form of words in connexion with the symbolic responses evoked by other types of situation. In the actual making of a map only relations between symbol patterns are involved, the associated experiential processes of observation and measurement themselves evoking a symbolism to which the symbolism of the map has to be related. But we cannot significantly speak of direct correspondence between the map and the non-symbolic situation for the generally applicable reasons which I have given. Even if to speak in such a way may sometimes be a convenient form of words, it nevertheless begs the question as before. What actually occurs, and what is actually being asserted, is always correspondence between the symbolic and the symbolic, and not between the symbolic and the non-symbolic. Moreover, in using maps we are concerned either with situations involving relations between symbol patterns or with situations involving, not 'correspondence' between the symbolic and the non-symbolic, but the effectiveness of the map in evoking appropriate non-symbolic responses in a non-symbolic context —*e.g.*, that associated with transit from place to place. Finally, if we consider the purely sensory content of a map, quite apart from the symbolism employed and its conventions, there is in general no resemblance between a map and what it maps such as might perhaps be supposed to be the ground of some kind of direct 'correspondence' between the one and the other.

I think that all the trouble arises from a misconception of the nature of symbols. These are not labels affixed to definite entities—one label per entity—but tools constructed for a certain function which develop as such in experience. The real question is not as to what entities 'correspond to' particular symbols but whether symbol patterns perform their function effectively, at any rate up to a point. The existence of practically effective bodies of knowledge answers this question affirmatively, no matter what may be the difficulties arising in the arguments of philosophers about symbols and their connexion with the non-symbolic.

The view of the nature of symbols which I have just suggested was implicit in my theory of truth, in which the view that 'truth' is something which 'corresponds to' 'fact' was abandoned except only in the sense that the kind of things—namely, symbol patterns—which can appropriately be said to have the characteristic called 'truth' develop in experience from non-symbolic content. But the occurrence of symbols and symbol patterns in experience, both as original spontaneous reactions or deliberate constructions and in subsequent use, is not a kind of pairing of labels with 'objects' and 'facts' but a type of responses to experiential situations—which may involve non-symbolic or symbolic content or both; responses which in their turn evoke other responses of various kinds, whether in the form of bodily activity, imagining, feeling, or further symbolic sequences and patterns constituting thought-processes. When symbols are regarded in this way most, if not all, of the common difficulties and paradoxes which arise in this connexion seem to me to disappear.

It is worth considering some of these difficulties. First, there is the use of the term 'constituent' in this context. I remember when I first began the study of modern logic being very puzzled by such a statement as that "this table [not the symbol 'table' but an entity supposed to correspond to it] is a constituent of the proposition 'This table is round'." Without thinking much about it, I had been accustomed to regard a proposition as a sequence of words or other symbols, and the notion that a non-symbolic entity could be a 'constituent' of it did not seem to me to make sense. But I soon realized that philosophers looked upon a proposition not as a sequence of words—a 'sentence'—but as something with some shadowy kind of being which a sentence 'stood for,' or 'represented,' or 'designated,' while the various terms in the sentence—substantival, adjectival, and relational—'corresponded to' definite entities which might be 'existent' or, as in the case of universals, 'subsistent,' and were constituents of 'reality' or 'fact.' I confess that all this seemed to me to be very muddled and largely unnecessary for reasons which I have given in discussing universals and propositions and symbolism in general. There are 'sentences' consisting of symbol sequences which are within the content of experience and which emerge therein from various experiential situations, but the assumptions that there are such things as 'propositions' intermediary between the symbol sequences and the situations from which they emerge and that in the latter—or in any 'transcendent' realm of being—there are definite entities corresponding precisely one for one with the terms in the symbol sequences is both unjustified and unnecessary.

Then there are our old friends the so-called 'pseudo-objects' such as the 'round square' and 'the present king of France.' The difficulty in regard to the occurrence in sentences of such terms arose immediately from the assumption that there are entities corresponding to the symbols in sentences. The elaborate analysis of the nature and usage of symbolism, and of the logical structure of language, which Bertrand Russell has developed in his famous 'theory of descriptions,' [1] is among other things a method of overcoming this difficulty. But whatever may be the great interest and value of the theory of descriptions in its various applications it seems to me that the theory of symbols which I am advocating disposes of this particular difficulty far more simply and directly. The real question with regard to the emergence in experience of such a symbol combination as 'round square' is whether it functions effectively; that is, whether it contributes to the harmonizing of experience by fitting consistently and compatibly into an organized system of symbol patterns satisfying the criteria of 'truth' which I have suggested, and so by its contribution enables us to deal with the content of experience more adequately. By this test the symbol combination 'round square' is clearly to be discarded; not because it is 'meaningless'—it isn't, in my usage of 'meaning'—but because it is not merely useless, but throws a spanner in the works. At the same time, we can make significant statements—*e.g.*, those just preceding—regarding the symbol combination 'round square,' and no difficulty arises about this. Similar considerations to those I have been discussing in connexion with pseudo-objects serve also to obviate any difficulty which might be supposed to arise in connexion with so-called 'negative facts.'

The supposed necessity which first gave rise to the theory of descriptions and incomplete symbols—namely, that of disposing of alleged difficulties in connexion, for example, with pseudo-objects and with proper names—therefore rests on a view of the nature of symbols and their relations among themselves and to non-symbolic material, which seems to me to be ill-founded. With the realization of the fundamental nature of symbols as responses to experiential situations the difficulties vanish. Nevertheless, the high interest and importance of the theory of descriptions and its ancillaries in clarifying certain points in connexion with symbol usage and in providing a valuable technique in the handling of symbolic material undoubtedly remains.

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[1] *Cf.*, for example, his *Introduction to Mathematical Philosophy*, Chapter XVI.

The kind of issue which is involved in this field may be illustrated by some aspects of Bertrand Russell's treatment of the problem of Time. Consider, for example, the following quotation from the new "Introduction" (p. xi) to the *Principles of Mathematics* [1]: "'Time consists of instants,' for example, may or may not be a true statement, but in either case it mentions neither time nor instants. It may, roughly, be interpreted as follows: Given any event *x*, let us define . . ." in which a propositional function of an apparent variable *x* is substituted for the original statement in order to get rid of the apparent reference to the 'pseudo-entities,' time and instants.

Now it is quite clear that, in any sense of the term 'mention' congruous with general usage, the statement 'Time consists of instants' *does* mention time and instants. What Russell apparently means in denying such mention is that, among the 'constituents' of the *fact* 'corresponding to' the sentence 'Time consists of instants' there are no entities 'corresponding to' the symbols 'time' and 'instant' which occur in the sentence—for reasons already given I omit reference to that ghostly intermediary the *proposition* 'Time consists of instants.' We thus have again here only a pseudo-difficulty, arising from the unjustified assumption that in general there are in fact definite entities 'corresponding to' the definite constituent symbols which occur in sentences.

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[1] Allen and Unwin, 1937.

The issue here is so important that I should like to return for a moment to the consideration of the alleged 'correspondence' between symbols and non-symbolic factual entities. What is the nature of this correspondence? Evidently there is in general no question of any *qualitative similarity* between symbol and fact. The correspondence must therefore be something merely in the nature of an enumerative pairing, or one-one correlation, between symbols and factual entities. But, leaving aside all the reasons I have given for regarding the notion of correspondence here as invalid, if there is simply a one-one correlation between symbolism and fact what determines, and how do we apprehend, which symbol corresponds to which factual entity? If this question is pressed we are driven either to a vicious infinite regress or to the view of the nature of symbols which I am advocating—namely, that they are not labels paired with factual entities but elements in experience which first emerge as responses to experiential situations, and which themselves evoke responses. In other words, the attempt to justify the correspondence theory itself leads to a view of symbols which, as I have tried to show, proves that theory to be invalid and unnecessary. It is perhaps worth adding that if we assume 'correspondence'—and this is, as it must be, merely one-one correlation—no significance can be given in this context to the 'truth' of a sentence. For evidently any reasonably congruous use of the word 'truth' involves something quite different from a mere one-one correlation between the constituent symbols of a sentence and certain supposed factual entities.

We are led on naturally to the consideration of a theory which is primarily associated with the names of Bertrand Russell and A. N. Whitehead, and which has for its main purpose the justification of the validity of physical science. This theory is sometimes called 'constructionism,' and it asserts that the so-called 'pseudo-entities'—such as 'points,' 'lines,' 'instants,' 'electrons,' and so on—in terms of which the statements of physics are normally expressed can be exhibited as 'constructions' of sensa or sense-events which are the ultimate empirical observable entities. This is held to be the justification of physics on empirical grounds.

Now with all diffidence I wish again to maintain that the theory of constructionism is invalid and unnecessary. For if (say) a point or an instant is a pseudo-entity then equally a sensum or a sense-event is a pseudo-entity. It is true that we do not observe points, but neither do we observe sensa as precisely definite entities. If, for example, a visual sensum were such a definite entity its boundary would necessarily be a geometrical line, and we certainly do not observe such lines any more than we observe points. Hence we gain nothing by defining points in terms of sensa and the relation of enclosure.[1] For if we speak in terms of sensa we are still speaking in terms of pseudo-entities.

Putting the matter another way, suppose I am contemplating the tip of a needle, or a minute but visible dot on a sheet of paper, and I say, "I am observing a point." Then I should say that my statement is just as appropriate or inappropriate, valid or invalid, as in other circumstances would be the statement "I am observing a round patch."

It might perhaps be urged that, for the purpose of constructionism, it is not necessary to assume sensa as precise observable entities, but only to observe the relation of enclosure in the visual field. I shall not inquire into the soundness of such a contention. It is enough to indicate that, if it *were* sound, an exactly similar consideration would apply to the case of points. For points enter into physics in connexion with positional relations, which are measured empirically and expressed in terms of 'co-ordinates,' and are certainly observable in any sense in which enclosure relations are observable.

If we speak in terms of 'sense-events' instead of sensa the matter is further complicated by the temporal implications, for a sense-event as a definite entity would be bounded temporally by instants, and the objections already mentioned would be reinforced.

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[1] *Cf.*, for example, Bertrand Russell's *Our Knowledge of the External World*, pp. 114 *ff*.

For these reasons, therefore—and in spite of the boldness and originality of its conception and the scope and ingenuity of its application—I cannot escape the conclusion that the theory of constructionism is not in the end valid. I should not, of course, venture to maintain that statements in terms of 'points'—such statements being symbol sequences—are not, within the whole system of symbol patterns which constitutes the field of physical theory, translatable into statements about sensa and the relation of enclosure. What I am maintaining is that statements about sensa are no more valid, in the sense of the constructionists, than are statements about (say) points, for sensa are no more definite actual entities than are points.

This brings me to my second contention—namely, that the theory of constructionism is unnecessary. One of the chief reasons why that theory is invalid is that (as it seems to me) it is based upon a wrong view of the nature of symbols. On the other hand, if the view of symbol patterns as systems of functional responses is accepted constructionism is seen to be unnecessary. For the question at issue then becomes one as to whether a system of symbol patterns made up of elements such as 'points,' 'instants,' and the other normal symbols of physical theory is effective in making accurate prediction possible and in determining action successfully to the achievement of desired ends. The answer to this question is clearly in the affirmative over a very wide field, though both within and on the borders of this field developments and improvements are continually being made in the framing of a symbol system which shall perform its functions as effectively as possible. Certainly a system in terms of the usual symbols of physics is just as effective—and far less clumsy and prolix—than a system in terms of the symbols of constructionism.

For similar reasons, any other apparent difficulties in connexion with symbolism which have been met by theories in terms of such things, for example, as 'descriptions,' other 'incomplete symbols' (of which 'classes' form a notable type), 'logical constants,' and so on, disappear when symbols are realized to be responses to experiential situations and not labels having a one-one correspondence with definite entities. It must always be remembered, of course, that such situations will themselves often include symbolic material. For although symbols and symbol patterns originally emerge in experience as responses to non-symbolic situations, further symbol patterns develop as responses to the situations involving the original symbols, and so on indefinitely. It is this process which produces the hierarchy of 'languages' and of symbolism generally.

A word should be said about that type of analysis—sometimes called 'real definition'—which consists in the enumeration of the properties of a complex 'represented by' some symbol. Real definition is often held to differ from other forms of definition in that it is not merely a rule of translation of one symbol or symbol pattern into another symbol pattern but can be appropriately called 'true' or 'false' according as the properties of the complex concerned are correctly or incorrectly enumerated by it. Incidentally, it should be added that, where the symbol pattern of the complex emerges from a symbolic, and not a non-symbolic, situation, the phrase 'contextual definition' is sometimes used in regard to it in place of 'real definition.'

It is clear that this view of real definition implies the theory of the nature of symbolism which I have been criticizing, and I should therefore discount it. I should say that, whereas in 'formal' definition we are concerned with the purposive development in experience of a rule of translation of one symbol pattern into another in order that the symbolism may function more easily and effectively, in 'real' definition we are concerned with two symbol patterns—and 'symbol pattern' includes the case of the single symbol—which have emerged in experience through processes following different routes. The response to some situation may consist in the relation of the two symbol patterns produced by these processes, and this is the expressing of a 'real definition.' 'Truth' or 'falsity' in regard to it will be considered according to the criteria already discussed, the main consideration being the functional effectiveness of the whole symbol system.

I conclude that analysis is concerned only with symbols. It is a type of experiential process which occurs as a response to situations involving symbolic content, and consists in an investigation of the relations between symbols aimed at securing a more harmonious adjustment within symbolic experience and at a symbolism more effective in its operation within the whole content of experience. There is no question of some kind of dissection of non-symbolic content or of anything outside experience.

The fact is, of course, that there is no substitute for acquaintance. Reality is something to be lived or experienced immediately, and not 'known' through symbols which somehow 'correspond to' or 'copy' or 'represent' it. Symbols are tools, like any other kind of tools, for developing and modifying experience towards a progressively more harmonious adjustment experienced as feeling-tone which is satisfying in itself, while knowing is a relation within experience which, though functionally effective for the purpose of adjustment, cannot give acquaintance with one part of the content of experience through acquaintance with another (symbolic) part.

But, it may be urged, we are acquainted with symbols themselves—they are sensa or sensory images and therefore, like any other kind of sensa, are pseudo-entities in that they are not precisely separable and determinable. I agree, and return to my basic contention that experience is a unity and not a system of separate and identifiable related parts. But no difficulty arises here unless we commit the fallacy of pseudo-transcendence by considering ourselves as viewing experience from the 'outside.' In fact, the making of the symbolic marks which, for example, constitute the writing of this book, and the thinking which has preceded this, are integrated in an experience which is an indivisible unity, the whole process being directed to a more harmonious—and therefore more satisfying—adjustment within that experience. Similarly, any reader of this book will, as we say, 'accept' or 'reject' it according to the degree in which the reading of it contributes, or fails to contribute, to harmonious adjustment within his own experience. The ultimate aim of existence must be a completely satisfying state of being—a perfectly harmonious adjustment—for all. The meaning of such a state of affairs would be for each something within his own experience, and, to the degree in which he felt it to be achieved, he would, in the symbolic field, speak of 'agreement.' All this, however, raises metaphysical issues which it is not appropriate to pursue further here, but which I shall consider in another chapter. Here I will only add that any apparent difficulty which arises in this connexion in the epistemological context is due to the fact that an expression of 'theories' is necessarily made in symbols which are marks or noises and therefore sensory in character, whereas the ultimate criteria are in the nature of feeling.

Before leaving the question of analysis, and the related matters of 'form' and 'structure,' I should like to draw attention to an analogy given by Eddington in one of his earlier books,[1] which is of considerable interest in this connexion.

Eddington asks us to imagine that in the far-distant future antiquarian research discovers a volume containing records of a large number of games of chess recorded in the special symbolism employed for that purpose, and, I would add, without pictorial or semi-pictorial illustration or diagrams. Eddington points out that, although the game of chess might long since have vanished in the mists of antiquity, the investigators, by long and detailed study of the symbolic records, would be able to establish beyond doubt the nature of the moves and the rules of the game through the discovery of certain uniformities in the records. I would go further and say that, even if the system of recording were one of those in which it is unnecessary even to use symbols for the chessmen themselves but only a method of recording their 'positions' by a 'co-ordinate' notation, it would still be possible to discover the whole pattern of the game. This would then be expressed in terms of rules for the substitution of ordered pairs of numbers —'co-ordinates'—for one another, the particular rule of substitution depending on the particular pair of numbers with which a given sequence of substitutions began. All rules for 'moving,' 'capture,' 'check,' 'checkmate,' etc., could be expressed in this way.

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[1] *Space, Time and Gravitation* (Cambridge University Press, 1920), Chapter XII, p. 184.

Now, it is quite clear that, although it would be possible to discover the rules of chess—and, indeed, to play what was in effect a game of chess—through a careful study of the pattern of the symbolic record, no amount of study of the latter could convey to the investigators the actual nature of the materials of the game: the participants—*i.e.*, the chessmen—and the field—*i.e.*, the board.

Although this analogy is not altogether precise for my purpose, I would, so far as it applies, extend it to all symbolism, including ordinary language, for it certainly illustrates well the nature of symbolism and the fact that symbolism emerges in experience as response to experiential situations, and is not in the nature of 'correspondence' with systems of definite entities. It is true, of course, that the chess symbols, like most other symbols, have a *meaning* for us which they would not have for the antiquarian researchers—namely, the particular situations in which they arise and in which we use them—but this does not in any way affect the point I am making.

I have already said that analysis is concerned only with symbols. I would now add as a corollary that the same is true of what we term 'form' or 'structure.' For the investigation of this always reduces to a study of symbol patterns and the relationships within these. Of course, we could if we wished say, *as a rule of definition*, that, when a symbol pattern exhibits 'structure' this *is* the possession of structure by the experience from which the symbol pattern has emerged; but evidently this is purely verbal and quite different from what is usually meant—namely, a 'correspondence' between the structure of the symbolic on the one hand and the non-symbolic on the other.

It will no doubt be seen that hovering round our discussion up to this point there have been certain problems connected with the term 'experience,' and to these I will now turn.

Experience

I shall be concerned primarily with my own usage of the word 'experience,' which is, I think, closely congruous, and perhaps practically identical, with its general usage by philosophers. In ordinary everyday language the usage of the word is often more restricted, simply indicating the distinction between acquaintance and knowledge. Thus we speak of 'actually experiencing' something or other as distinct from merely having it described to us. I shall pass over this narrower usage of the term, though it is of course a stage in the development of the wider philosophical usage. 'Experience,' as I should use that term, is a symbol evoked by my very existence—not by what, as an analytical statement in symbols, I might speak of as some particular part or parts of my existence, but by my existence as a unitary whole. Also as a statement in symbols, I should say that 'experience' expresses my type of being—which I am also calling 'existence'—though whether there is any sense in which we can speak of other types of being is a metaphysical question to be considered in due course.

I am aware that by the use of the term 'my,' with its implied related personal pronouns such as 'I' and so on, I am begging certain questions, but these again are mainly metaphysical, and will be dealt with in another chapter. Moreover, it is true that, by relating the terms 'experience' and 'existence' in this way, I am involved in a circularity. But I believe such a circularity to be something inevitable and ultimate which drives us back on to the acid test—namely, whether the interrelationships within the symbol pattern which expresses our philosophy (and which has emerged and developed in our experience), even if they involve a measure of what we term 'circularity,' nevertheless create in our experience, through our response to them, that feeling of harmony and adjustment which must always be our final criterion. For myself this criterion is satisfied, but here each can speak only for himself.

It is clear that, considered as such, any developing symbol system must tend to circularity, for at least some of the symbols involved will emerge in experience which contains other symbols of the system, and generally the process will include the construction of rules of definition for the translation of some symbols into others. The tendency is therefore towards the formation of a rounded-off whole in which the 'starting-point' is largely—and perhaps entirely—arbitrary, though some starting points may, and usually will, be more convenient and effective than others. But such circularity raises difficulties only in regard to the 'correspondence' theory of symbols; on the functional view, if the system satisfies the criterion of fulfilling its function by contributing to harmonious adjustment in experience—including both non-symbolic experience and symbolic experience which, in one of its aspects, we call 'intellectual'—the circularity is irrelevant, and no difficulties arise from it.

In the present context, however, something more and something rather different is involved. For the word 'existence'—or any functional equivalent of it—is in fact a unique symbol in one respect. For its meaning—namely, that from which it emerges and in which it is used—is itself a condition for there being any symbols at all. Now that from which the symbol 'existence' emerges—as, indeed, do all other symbols—is what we call 'experience,' and it is this fact which links 'experience' and 'existence' so closely. But 'existence' differs from other symbols in that it emerges, not from *particular* experiential situations, but from experience as a whole. A genetic study of the emergence of the 'existence' symbol, in the case both of the individual and of the race, shows, I suggest, that it emerges originally as self-existence—namely, from there being individual monadic experience from certain aspects of which there emerge such terms as 'selfhood' and allied symbols.

It is for this reason that what I have called the 'monad'—that is, the individual unitary experience-whole—is the entity in connexion with which the term 'existence' is most appropriately used in the context of a developed system of philosophy. Each of us has, in fact, what might be called a 'sense of existence,' a phrase which I regard as indefinable but meaningful. This sense of existence is not identical with, nor dependent on, any *particular* kind of experience; it is the common element in all experience. It makes intelligible—that is, capable of being fitted harmoniously into the general philosophic symbol pattern—the notion of different types of experience, both in regard to human beings and also in regard to experience—*e.g.*, that of other kinds of organisms—largely, and perhaps entirely, dissimilar from the human. But two questions then arise for the philosopher. The first is as to what there being other types of experience means in terms of his own experience, and the second as to in what, if any, sense he can speak of kinds of 'being' other than 'existence' with its unique attachment to monadic experience.

There are in my experience different sensory types of situation which I relate to the experience of what I call 'my body' and in particular to what I call 'my senses.' Temporary or permanent deprivation of any of these leads to the notion of the absence of certain types, and, *per contra*, to that of the possible presence of types different from and either additional to, or in place of, the 'normal' types. Although I have spoken in terms of sensory (including imaginative) experience, the same also applies, of course, to other kinds of experience, such as feeling, emotion, and so on. On the one hand, we can think of possible unusual types of *human* experience, such as the 'suprasensory,' the 'supernormal psychic,' and the 'mystic' or 'religious,' such words and phrases being symbols which have emerged from the experiences of certain people. On the other hand, we can suppose types of experience more analogous in certain general respects to the normal types of human experience, but perhaps quite different qualitatively from the latter, in relation to various organisms other than human. We relate the notion of such possible types of experience to the occurrence in some of our experiential situations of what we call the 'bodies' or the 'bodily appearances' of other organisms, and, indeed, it is from these situations that there emerge the symbol patterns which constitute our thought about other possible types of experience. Hence *for us* these types of experience consist of certain patterns within our own experience, both symbolic and non-symbolic, though we are by the nature of the case debarred from actual acquaintance with their quality and content even if there be such types of experience at all. Again, the criterion is whether the inclusion in our symbol system of certain symbols which would ordinarily be said to 'refer to' other types of experience contributes to the harmony, or helps to 'make intelligible' our own experience, and this we shall have to consider in later chapters.

As to the second point—namely, as to whether we can speak significantly (that is, in a congruous and harmonizing manner) of kinds of 'being' other than 'existence'—I would first say that I would use 'being' as what would ordinarily be called a more 'general' symbol than 'existence.' For me the latter is distinctive of the unitary monadic experience-whole, for reasons which I have given; but the symbol 'being' is related to the occurrences in my experience of all kinds of symbols, and in fact emerges from the experiential situations which include these occurrences. As an illustration one might mention the case of the symbol 'universals' and the many particular symbols 'of universals' which are associated with it. The symbol 'subsistence' is often used for the symbol 'being' in this and certain other contexts, but it must once again be emphasized that there is no question of specific entities which transcend, or are 'outside,' experience, but only of the occurrence of certain symbols which may or may not—as responses themselves and in the responses they evoke—function effectively in the harmonizing of experience, both symbolic and non-symbolic. Whether this criterion is satisfied is another question to be considered later in a metaphysical context, but a further difficulty to be noted is that no meaning can be given to direct apprehension of the nature of types of being other than existence, for such apprehension would involve acquaintance, and therefore experience, which is ruled out because the reference is to possible types of being other than existence, which would be distinctive of experience.

Before leaving this general discussion of 'experience' something must be said about my use of the terms 'monad' and 'monadic' in relation to experience. The word 'monad' is of course closely connected with the symbol 'one,' and its associated symbols, such as 'unit,' 'unitary,' and so on. The *meanings* of the numerical symbols, as distinct from their *definitions* in terms of other symbols, are constituted by the situations in which they are used. Other symbols associated with them in this usage are those such as 'separate,' 'individual,' 'isolable,' for in the process which we call 'enumerating' or 'counting' we think or speak in terms of 'separate,' 'individual,' and so on 'entities.' But the symbolism itself is a closed and —in the sense previously considered—'circular' system. Here, as always, there is no question of 'correspondence' with 'reality,' but only of functional effectiveness. I should, however, add here that the term 'individual' is often (and perhaps more appropriately) used with a rather more extended meaning than I have been considering in this connexion—namely, in situations where it is related to something not only 'unitary' but also 'unique,' as being a solitary instance.

Now, reverting for the sake of strict validity to egocentric statement, I find the use of such terms as 'unit' and 'unitary' peculiarly appropriate in my experience-situation as general symbols arising in that situation as a whole with what I should call its 'exclusiveness' and 'completeness.' In other words—and of course as itself a symbolical statement—for me my experience is the 'universe.' Hence for me the term 'monad,' as a distinctive convenient derivative from 'unit' and 'unitary,' is here an appropriate symbol defined as 'my experience-whole.'

The method for using such symbols as 'I' and 'my' in connexion with the latter, as well as certain other symbols, such as 'ego,' 'subject,' 'object,' falls partly for consideration in a psychological context and partly in that of metaphysics, and will be dealt with in due course. But I hope that enough will already have been said to explain why I take the 'monad' to be the 'existential unit' or 'unit of existence,' from which I pass to what I call 'the existence of other monads' as a symbol pattern to be woven into a more fully developed symbol system as contributory to the harmonizing of 'my own' experiential situations, symbolic and non-symbolic. But this is again a metaphysical matter to be considered later. Here I will only add that, if my usage of 'monad' is accepted at all, it is clear that the monad is not only 'unitary' but also 'individual'—in the extended sense—or 'unique,' for it can hardly be supposed that the contents of any two monadic experience-wholes are precisely identical.

I shall now pass on to the consideration of certain important terms involved in the handling of experience, first dealing with 'probability' and 'induction.'

Probability, Induction, and the 'Uniformity of Nature'

The question has frequently been asked, "What is probability?" or, "What is the nature of probability?" As in the case of "What is truth?" the question stated in such a form is strictly non-significant, for it implies that there is some definite kind of thing in the world to which the label 'probability' has become attached, whose nature we are trying to investigate. But this is quite a wrong way of looking at the matter. The real question is as to how, and in what situations, we use the term 'probability,' and how we apply it with its associated symbol system in dealing with the content of experience.

The word 'probability' seems to emerge originally in experience in connexion with the repetition of patterns of associated events. I shall here use the term 'event' somewhat loosely as equivalent to an occurrence within experience. For my present purpose it is not necessary to define it more precisely. Further, when I speak of 'associated events' I am not implying any particular temporal significance. The events considered might be concurrent, or immediately following one another, or separated by a period of time—all three cases arise in this connexion. The various terms used here, such as 'time,' will be considered in due course in the different kinds of context involving them, but for the moment I shall take them for granted.

The repetition of (say) a sequence of two events A, B, gives rise on a subsequent occurrence of A to what is called a sense of 'expectancy' that B will also happen. But sometimes A may occur without its being accompanied or followed by B. The nature of the sense of expectancy, as regards what we call its 'degree' or 'intensity,' will tend to vary according to the frequency of the cases in which B has been associated with A compared with the frequency of the cases in which A has occurred without B. It is from situations involving this repetition, non-repetition, and the consequent sense of expectancy that the term 'probability' derives its *meaning*.

This, however, is only the first stage. As a result of the variations in expectancy, for the reasons given, attempts are then made to associate with probability some kind of numerical measure, and in order to do this it is necessary to pass from the original *meaning* of 'probability' to some kind of precise *definition* of the term. This, of course, involves translating it into other symbols with a view to embodying it in a symbol system which may be functionally effective in dealing with experience.

It is here that the trouble begins, for various different ways of defining 'probability' have been suggested. These methods of definition have often been regarded as what are called theories about the 'nature of probability,' though wrongly, for the reasons I have already given. What really comes out of it all are various rules of procedure, which might appropriately be called 'probability rules.' I wish to emphasize this point—namely, that what we are actually concerned with is not some 'entity,' or 'factor,' or what you will, inherent in experience and called 'probability,' but suggested rules for using certain symbol systems for particular purposes in dealing with some aspects of experience. In view of the original meaning of the term 'probability,' it is quite appropriate to call these rules 'probability rules.' When the matter is approached in this way the general difficulties disappear and we are left only with the question as to which of the rules, with its associated symbol system, is the most effective for its purpose.

Before considering the best-known types of probability rule I will refer briefly to a method of treatment which, though he did not originate it, was largely developed by J. M. Keynes.[1] In this treatment probability theory is described as "the logic of uncertain inference," and the probability *of the truth of a proposition* is defined as "the degree of our rational belief" in the truth of the proposition, this belief being determined, at any rate in part, by relevant knowledge.

It will be seen that the emphasis here is not on the occurrence of events but on the truths of propositions, though evidently there is a close relation between the two. The difficulties which arise are fairly obvious. It is not easy to make the phrase "rational belief" precise, while even if this could be done there remains the further difficulty of assigning a numerical measure to degree of rational belief. Keynes's development is stated primarily in non-metrical symbolism, and any attempted transition to the metrical in order to get a working probability rule is doubtful and unconvincing. I therefore cannot help concluding that this treatment of probability, in spite of its interest and careful and ingenious development, fails by the criterion of providing a probability rule which is both clearly intelligible and practically effective in dealing with the relevant concrete problems presented by experiential situations. The symbol system developed, whatever its degree of internal coherence, is in fact inefficient as a functional response to these situations directed to the achievement of certain practical ends.

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[1] See his *A Treatise on Probability* (Macmillan, 1921), especially Part II, Chapters X–XVII.

Leaving aside the treatment of probability theory as the logic of uncertain inference, the three most important alternative probability rules are, I think, those associated with what may be called respectively the '*a priori*,' the 'sub-aggregate,' and the 'frequency' theories.

The *a priori* theory considers the occurrence of some defined event E in association with a defined set of conditions C. Common examples are taken from the spinning of a coin or the throwing of a die. In the former case E might be the turning up of a 'head'; C would be circumstances regarded as constant, and related to the nature of the coin and the conditions of spinning. In the second case E might be the throwing of a 'six,' and C would relate to the nature of the die and the conditions of throwing. The usual procedure is to regard the possible events issuing from C as being exclusive and exhaustive, the events being said to be 'equally likely.' It is clear that, to avoid circularity in relation to probability, the phrase 'equally likely' must be supposed to be defined by the nature of the conditions C, but in effect it comes to assuming that, in a long series of trials, each possible event will occur in approximately the same proportion of cases, and that the longer the series the more nearly will equality of occurrence be approached. Thus in the case of the coin the events 'heads' and 'tails' are taken to be equally likely as defined by the nature of the coin and the circumstances of its throwing, and in effect this comes to assuming that in a lengthening series of throws the numbers of 'heads' and 'tails' would more and more approach equality.

It is clear that we are here verging on the question of frequency, and this will be considered more fully in relation to the third type of probability rule. But in any case there are difficulties in connexion with the series of trials, its length, and the 'limit' to which the proportions of 'heads' and 'tails' may tend. I believe that these, and other, difficulties can be avoided—and then merely in principle—only by making the theory completely self-contained in the sense that it defines 'probability' and 'equally likely' in terms including both the antecedent conditions and the *assumed* consequences. The theory thus becomes '*a priori*' not only because the conditions are defined antecedently but also because the possible range of consequences and their proportions are also *defined* antecedently. In this form the theory would be a symbol system coherent in itself but of no practical use unless it were further modified in such a way as to transform it, in effect, into one of the other theories.

In the 'sub-aggregate' theory consideration of the antecedent conditions C is developed further by taking each possible initial set of conditions, as defined by the values of the contributory factors, to be what is called a 'phase' of C. These phases are then divided into E and not-E phases according as they do, or do not, result in the occurrence of E. The E and not-E phases are sub-aggregates of the whole aggregate of consequences of C. The mathematical theory of aggregates enables us to assign a measure to the sub-aggregate of E-phases, and the 'probability of E' is defined as the ratio of this measure to the measure of the whole aggregate.

Now it seems to me that, for practical purposes, the sub-aggregate theory suffers from the same drawback as the *a priori* theory; namely, that to make it significant without introducing the use of additional terms which do not properly belong to it—especially the term 'frequency'—it is necessary that not only should the initial conditions be precisely defined but also the possible consequences and the relative measure of each of these. This is shown up particularly clearly by cases of what is sometimes called 'geometrical probability,' common examples of which are the probability of picking out a point within a given segment of a given line—in which case the measures of the aggregates involved are ordinary lengths—and the probability of drawing a chord in a circle to exceed a given length. The second case is especially interesting, for here the measures of the aggregates, and therefore of the 'probabilities,' will vary with the way in which the chords are drawn—*e.g.*, whether they are drawn from a point on the circumference of the circle at different angles, or by taking a diameter and then drawing chords parallel to it. Here the possibilities and the measures of the sub-aggregates—and thus of the 'probabilities'—are all defined in advance, and what is really being stated is merely something about the relative measures of sub-aggregates defined in a certain way, and the attachment of the label 'probability' to these is, strictly speaking, arbitrary.

It might perhaps be urged that, in the case of the chord in the circle, the theory *could* be applied practically—for example, by betting on the length of the chord drawn, when if odds were taken which were favourable in relation to the 'probabilities' given by the theory the gambler would be sure to win in the long run if the chords were drawn at random.

Now, passing over difficulties in connexion with the phrase 'in the long run' of a kind which have already been mentioned, it will be seen that another awkward phrase has crept in—namely, 'at random.' If we try to define what is meant by drawing chords 'at random' we shall find that this is only possible with precision if we say, in effect, that the chords are so drawn that the values of the proportions of their varying lengths tend 'in the long run' to the measures of the respective sub-aggregates. In other words, we are saying, not that if the chords are drawn at random such and such results are produced, but that the only precise definition of drawing 'at random' is that it does in fact produce such and such results. If we try to escape this by some other, and imprecise definition of 'at random' we are undoubtedly led beyond the bounds of the sub-aggregate theory until we reach some form of frequency theory.

I therefore conclude that the sub-aggregate theory, while a perfectly coherent and consistent symbol system in itself, suffers from the same kind of circularity as the *a priori* theory so far as practical situations are concerned in which the term 'probability' is congruous.

For practical purposes we are thus finally led to consider the frequency theory. This states that if, from a set of initial conditions *C* of a given kind, a certain event *E* may sometimes—but not in general always—follow, then the 'probability' of *E* given *C* is the limit to which the ratio of the number, or 'frequency,' of the *E* cases to the total number of cases tends as the series of trials is indefinitely prolonged.

Stated in this form, the theory suffers from the same difficulties as the other theories in connexion with the defining of the initial conditions *C* and with limits and the number and lengths of the series of trials, but, fortunately, in the case of the frequency theory it is possible to modify the method of statement, without going beyond the terms proper to the theory, in such a way as to obtain a probability rule which is of practical significance and applicability.

Let us suppose that a certain event, or group of events, *C*—the 'antecedent,' or 'initial conditions'—is sometimes, but not always, accompanied by a certain event *E*. Let us suppose further that p is the proportion of the total number of observed and recorded cases of the occurrences of *C* in which *E* also occurs, up to a given time and known to an individual who is concerned with the matter. p is thus the ratio of the frequency of occurrence of *E* in such cases to the total frequency of occurrence of *C* enumerated in these cases. Now define 'the probability at the stated time for the individual concerned of the occurrence of *E* given *C*' to be p. This gives a working rule, of the kind I call a 'probability rule,' which the individual can apply in dealing with later experience.

We may illustrate this by a common type of example. A person may desire to bet on the occurrence of *E* given *C*. In order to win he will try to get odds more favourable than p, and will then proceed to bet on a series of occurrences of *C* over a period. The effectiveness of the probability rule which has yielded the value p will then be judged according to whether he has won or lost on the whole over the period. In either case, he may now review the series of occurrences of *C* and revise the value of p in accordance with the new observations added during his period of betting, with the object either of trying to convert loss into gain or of increasing the rate of gain. The revised value of p is the probability for him, at the time of the revision, of *E* given *C*.

A number of points emerge from this example. It serves to emphasize the fact that the usage of the term 'probability' is not significant in relation to some actual 'entity' or 'factor' 'corresponding to' the term, but only in relation to a certain type of rule—a 'probability rule'—for controlling certain kinds of action by individuals in connexion with certain types of association of events, and this rule is stated—and as a practical rule can only be stated—in terms of frequencies. Moreover, it will be seen that, although we speak of 'the probability of *E* given *C*,' we are not really making statements about a single event but about a series of occurrences of events.

It will further be seen that in situations in which the use of the term 'probability' is concerned there is involved incompleteness of knowledge about *C*, or the truth of indeterminism, or both. It is only because of this that the term 'probability' has emerged in experience at all. For, if rigid determinism were true, then, for a given *C*, *E* would *in all cases* either occur or not occur; but, even so, the individual concerned could not be sure whether *E* would or would not occur unless he had complete knowledge, which involves complete accuracy of observation, of the initial conditions.

I therefore conclude that in theories of probability other than the frequency theory statements are really being made about structural relations within systems, and that the use of the term 'probability' in this context is arbitrary and not congruous with the manner of its emergence in experience. But the frequency theory can be stated in such a way as to make congruous use of the term 'probability' and to yield a significant and practical probability rule.

To point this conclusion, consider the estimation by the method of sub-aggregates of the so-called probability of a point's falling within a given segment of a given line. In such an estimation the only thing we are really stating is the ratio of the length of the segment to the length of the whole line. To make the use of 'probability' significant and congruous here we should have to apply the test of actually picking out a number of points and then noting in what proportion of cases the point came within the given segment; in other words, we should have to determine a frequency ratio. Thus we could only test the sub-aggregate theory here as a practical proposition—and not merely a statement about geometrical relations—by transforming it into statements about frequencies. Moreover, even over an extended series of trials, the frequency ratio would rarely, if ever, exactly equal the ratio of the length of the segment to the length of the whole line; it might not even approximate to it. We should then no doubt say that the method of picking out the points was not appropriate—*e.g.*, that it was not 'random.' But we should then be going right beyond the bounds of the situation in which the sub-aggregate theory was to be applied, for we should be bringing in the conditions of human behaviour or of some selective mechanism. The frequency method in its practical form, on the other hand, suffers from no such difficulties, for the probability rules it yields are out-and-out empirical, and subject to continual revision. Incompleteness of knowledge and incompleteness in the specification of all the relevant conditions—including the method of 'selection' in cases where such a process is involved—are not included in its terms of reference, but are the very conditions of its significance, and, indeed, of the significance of the term 'probability,' as I have already pointed out.

Nevertheless, as we may see later, 'probability,' defined in a certain way, may be a convenient and not altogether incongruous term to use in connexion with certain relationships within some symbolic systems—for example, those which constitute mathematical physics. Even in such contexts, however, the frequency theory may be found to play an important part, especially that portion of it which deals with the types of frequency distribution, the most important of which is perhaps distribution in accordance with the curve of 'normal frequency distribution,' sometimes called the 'probability curve.'

Before concluding this discussion of probability, a word should perhaps be said about the rather vague use in ordinary language of terms associated with probability in statements such as, "I shall probably go abroad next winter." This statement presumably simply means in effect that the speaker feels that, at the time of the statement, the impulses tending to his going abroad next winter are stronger than the impulses tending to keep him at home. The meaning of 'probably' here is its usage in such a situation, but if we were to go further and to ask just what is the actual measure of the probability that the speaker would go abroad next winter we should, to make our question significant, have to consider what in the past was the relative frequency with which the given balance of impulses was followed by wintering abroad. Of course, in general this would be a practical impossibility. I mention it only to show that the use of 'probably' as above has a meaning which is innocuous, and that its occurrence does not give rise to any difficulty in connexion with the theories of probability we have been considering.

A special case arises when the value of p given by the frequency probability rule is unity—that is, when to date every known observed and recorded occurrence of specified conditions C has been accompanied or followed by an instance of a certain specified event E. It might then be said that, since the 'probability,' p, of E given C is unity, it is *certain* that C will *always* be accompanied by E in the future. But this is to confuse the use of the term 'probability' in such theories as the *a priori* and sub-aggregate with my use of it in regard to the 'probability rules' based on frequencies. These rules are avowedly empirical and practical in their application, and 'probability' is here used as a convenient name for such a type of rule; a use of the term which is sufficiently congruous with general and, indeed, other specific usages to justify its employment here. The value unity for p does not connote future certainty, but is just the upper limit of a value given by a probability rule which includes reference to a specific time and a specific individual who may apply the rule in future activities. The result of observation based on the latter may necessitate a revision of the value of p. All this is included in the statement and application of the probability rule.

But the case of $p = 1$ at a certain time is important because of its relevance to what is known as 'induction.' The term 'induction' is used in various contexts with somewhat differing shades of meaning, and discussions of induction have not been very clear or effective, partly—perhaps mainly—because of variability in the use of terms; but, broadly speaking, I should say that 'induction' occurs when a general principle emerges from observational experience of particular instances. I shall accordingly speak of the limiting case of a probability rule in which, to date, $p = 1$ as an 'inductive rule,' and I shall limit my use of the term 'induction' to the emergence of an inductive rule in experience. This seems to me to make for simplicity and clarity.

It is true that we sometimes make statements involving the term 'probable' of such a form, for example, as, "It is probable that a person with bubonic plague will die." But this statement is not even discussible till we have clarified the way in which the term 'probable' is being used. Do we mean, say, that to date more persons with bubonic plague have died than have survived, or are we agreed that if, to date, more than such-and-such a percentage have died death as a consequence of bubonic plague will be said to be 'probable'? But, if the usage of 'probable' is clarified in this way, the statement considered becomes amenable to treatment on the lines I have described.

An example of the kind of difficulty which can be resolved—or avoided altogether—by means of the views I am advocating is that raised in a somewhat barren discussion on the evidence (if any) of the truth of an inductive generalization provided by negative instances.[1] The question asked is whether a generalization such as "All ravens are black" is supported by the observation of things which are not ravens and not black—that is, whether the occurrence of non-black non-ravens is 'evidence' for, or makes more 'likely' or 'probable,' the truth of the statement "All ravens are black."

Now I suggest that there is no point in this question, and that discussion about it is an example of that futile kind of argument on which philosophers are spending too much time and thought. For symbolism is not, as it were, a 'reflection' of 'fact,' but a response apparatus evoked by experience and employed in dealing with experience, the usage of such terms as 'evidence,' 'likely,' 'probable,' depending on this.

The occurrence of an invariable association in the past is no guarantee of the continuance of the association in the future, nor is it relevant to the 'probability' of continuance unless the term 'probability' is used only in the strictly limited way I have described. All we can say is that the observation of an invariable association to date produces a certain attitude of mind in the observer which is called an 'expectation' that the association will continue to occur—but that is a quite different matter.

In the 'raven' case what we can say is:

(1) Some ravens have been observed.
(2) All these ravens have been black.
(3) Some things which are not ravens and not black have been observed.

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[1] See, for example, discussions in *Mind*, January and April 1945, and January 1946.

(2) may be made the basis of a probability rule with $p = 1$—that is, an inductive rule—namely, 'All ravens observed *to date* have been black'—on which we can proceed to act unless, and until, it is falsified by further observation.

(3) adds nothing to this, for p cannot be greater than 1, and this value is provided to date by (2), while any future instance which falsifies the statement "All non-black things are non-ravens" which might arise from (3) necessarily also falsifies "All ravens are black" at the same time.

The question as to whether (3) provides evidence for the statement "All ravens are black" is therefore not significant, and could not have arisen if the nature of the origin and application of symbolism in general—and in particular of such terms as 'probability' and 'induction'—had not been misunderstood.

I have said that $p = 1$ in a probability rule does not connote certainty for the future. Nevertheless, in considering induction attempts have frequently been made to discover whether there are any circumstances in which the invariable association of two events A and B in the past can be regarded as guaranteeing their invariable association in the future. I am using 'event' here—as throughout the preceding discussion in this section—in a rather loose and widely drawn way. Thus an 'event' might be the occurrence of a certain 'quality' in a certain context, and the association of A and B the association of two different qualities in this context. On the other hand, an 'event' might be a certain action, activity, or process. But this rather wide and vague usage is sufficient for my present purpose, and I shall take it for granted that when I speak of 'events' in connexion with probability or induction the kind of thing I am meaning will be understood. I think this stipulation is not unfair. We shall, of course, have to consider later the use of the term 'event' in certain specific fields.

Now it has generally been felt—and evidently with good reason—that one can in no circumstances proceed from the observation of invariable association in the past to the confident expectation of invariable association in the future without assuming some further underlying general principle of wide application. This hypothetical principle—for it *is* hypothetical—has been given various names, the best known of which is perhaps the traditional one of 'The Uniformity of Nature.' The principle of the Uniformity of Nature simply states in effect that, in that part of the content of experience which has given rise to the term 'Nature,' there are in certain circumstances associations of events which are invariable throughout time.

It is, I think, fairly generally agreed by now that, whatever the strength of our expectations resulting from invariable association in the past, there is no reason to believe that this can, in any circumstances, really guarantee invariable association in the future. The principle of the Uniformity of Nature is indeed not only hypothetical but in applicaton would be so whittled away by the precise specification of the 'certain circumstances' in which it would be operative as to become of null effect. We are forced back to the acceptance of the fact that it is sometimes possible to frame probability rules which are of practical use in future activity, and that, in certain cases, the value of the probability given by the rule is unity, though how long the probability will continue to hold this value without revision is uncertain.

There is, however, something more to be said. Let us symbolize the association of an event A with an event B by A/B. If, after observation of frequent occurrences of A/B without exceptions, we adopt the principle that A/B is always true and then begin to discover exceptions we try to meet this by modifying A or B, or both, in such a way as to cover the original observations as well as the exceptions to A/B. Thus we get a new principle Aa/Bb, where Aa and Bb are respectively the modified A and B. If exceptions to this then turn up we try additional modifications, and so on. Now, taking this in relation to a common, though crude, statement of the principle of the Uniformity of Nature—namely, 'same cause, same effect'—we might say, when exceptions to A/B begin to come along, that *A* could not *really* be the cause of *B*, but some modification of *A*. With further exceptions, we should modify again to get what we call the 'real cause' of *B*. Now, this process clearly leads to the conclusion that in the end the only criterion of the 'same cause' is that it produces the 'same effect.' Hence the principles of 'same cause, same effect' and of the Uniformity of Nature—of which the former is one expression—are empty tautologies.

It is nevertheless difficult to throw off the belief that the principle of the Uniformity of Nature is an attempt to express something which is true. I believe this truth to be what I would express in the simple statement 'similar instances occur'—and note that I say 'similar' and not 'identical,' though the first may of course include the second. It seems to me that we cannot imagine existence—which is for us [illegible] evoked [illegible]—of such a kind that the statement 'similar instances occur' would be false. The very making of the statement—and, indeed, the development of any symbolism at all—is possible only because the statement is true. I cannot see how there could be an experience which was not such as that which has evoked the term 'similarity.' On the other hand, there could not be an experience which was of an all-pervasive and everlasting sameness. Experience must be such as that which has evoked the term 'difference' as well as the term 'similarity.'

We are on fairly firm ground when we speak of similar instances of, say, 'green.' It is not so simple when we are dealing with what we call a 'complex,' such as *A*/*B*. Yet I think that any apparent difficulty is due only to a fact which I have emphasized before—namely, that although experience is actually an indivisible unity we tend to think of it as made up of definite separate parts 'corresponding to' our symbols. But the complex symbol *A*/*B* is actually evoked by an experiential situation which is a unity. Hence we can speak of similar instances of *A*/*B* just as we can speak of similar instances of 'green,' and I shall regard the differences between *A*/*B* and

Aa/B or *Aa/Bb* as precisely analogous to the difference between, for example, bright green and pale green, or between emerald-green and apple-green.

The great advantage of the principle of probability rules over the principle of the Uniformity of Nature is that it arises from, and allows for, just that combination of similarity and difference which is inherent in the very nature of experience.

Finally, it is worth noting that, as I also pointed out in considering the matter of prediction, the only criterion of the occurrence of similar experiences is that similar symbols are evoked. In fact, when we say that similar experiences have occurred we are really saying that the symbolic expressions or 'judgments' evoked by these experiences are similar.

In the foregoing I have frequently used temporal terms or [illegible] 'about' 't[illegible] temporal implications, and I shall therefore end this chapter with some discussion of the problem of Time in the context of general theory of knowledge.

Time

I believe that most, if not all, of the difficulties and paradoxes which are associated with the discussion of time have arisen from the same cause as other difficulties considered in the course of this chapter—namely, a misunderstanding of the fundamental nature of symbolism. 'Time,' and the terms associated with it, have been treated, not as responses evoked in experience by certain aspects of experiential situations, but rather as if they 'corresponded to' some definite actual entities or realities which, though they might condition experience, were in fact independent of it. Hence the traditional difficulties, other than those due to inadequate or incompletely consistent symbolism, are artificial.

Looked at from another angle, the difficulties in question may be considered as arising from the fallacy of pseudo-transcendence. On the one hand, time has been regarded as something pervading experience and closely integrated into it, while on the other hand, it has been regarded as something transcending experience—something as it were 'external' to experience, and 'in' which experience develops. Both these views—or something very like them—have quite commonly been held simultaneously.

But if 'time' and its associated terms are recognized to be, like other symbols, responses to experiential situations which emerge and develop as means of dealing with experience, no such difficulties arise. I shall consider the particular usage of temporal symbols in various contexts in ensuing chapters. Here I shall confine my attention to the general usage of certain key symbols, such as 'time' itself and 'present,' 'past,' and 'future,' so far as this affects theory of knowledge.

Bearing in mind, therefore, that the words 'present,' 'past,' and 'future,' being symbols, emerge in and are evoked by experience, it is clear that, *prima facie*, there is no justification for, or significance in, the use of these terms in connexion with anything outside experience. This is an example of the general question of the usage of any symbols in connexion with something which is not within experience; it is really a matter for metaphysics, and will not be pursued further at this point.

The next question is as to how we are to express in words the relation of 'past,' 'present,' and 'future' to 'experience.' The fundamental fact which determines this relation is that all experience is characterized by what we call 'presentness.' Every experiential situation or 'event' is present—that is involved in its very nature—and, bearing in mind what I have previously said about the connexion between experience and existence, and that I am here speaking of experiential events, leaving for later discussion whether there is any appropriate usage of the word 'event' for anything which is not within experience, it will be seen that there is no significant sense in which we can say that past (or future) events exist.

The truth is, of course, that the word 'past' and its associates are symbols which have been developed for dealing with certain aspects of experience involving a particular kind of relation between elements which, being within experience, are all present; in fact, they are 'present together,' or 'compresent.' The use of the symbol 'past' is a response to experiential situations which include sensa and what we call 'memory-images.' In a wider context 'records,' which are a particular kind of symbolic sensa, are also involved. The investigation of the nature of memory-images and of the development in experience of temporal symbols in connexion with those ordinal relations in the pattern of experience which involve both memory-images and sensa is the business of psychology. The important fact for theory of knowledge is just that this is the way in which the word 'past' and associated temporal symbols emerge in experience, and that when we make statements 'about' 'the past' we are really making statements 'about' what is present. If I say, for example, "I went to London yesterday," this symbol sequence is a response to an experiential situation involving memory-images compresent with the sensa and other elements in that situation.

In a similar way the word 'future' and its associates have emerged in experience as symbol responses to elements in experiential situations which are 'present.' Again, it is the business of psychology to investigate the details of the development of the relevant symbol pattern; here, I think, it is only necessary to note that fundamentally two elements are involved in this development—namely, the sense of 'anticipation' or 'expectation' which is an actual characteristic of experience and so of *the present*, and, on the symbolic side itself, the converse of the relation of present and past—in other words, the 'future' is that to which the present has a relation which is the converse of its relation to the past. Whether there occur in experience, in certain circumstances, images of the future analogous to memory-images is still uncertain, though there is some fairly weighty evidence in favour of it; but if this should prove to be a fact it will be necessary to adjust our symbol pattern accordingly in the temporal and related fields.

In addition to temporal terms involving order and succession, such as I have been discussing, there is another symbol which occurs in the temporal field—namely, the word 'duration.' I believe the general usage of this term is really in the end equivalent to my usage of the term 'existence,' but in so far as we introduce processes of measurement in connexion with it we are weaving it into the temporal symbol pattern by relating it to the symbols involving order and succession. For the purpose of theory of knowledge it is only necessary to note once again that the word is a response to certain features of experiential situations.

The word 'time' itself stands late in the hierarchy of symbol development in the temporal field. It does not emerge directly from non-symbolic experience, but from symbolic content which has reached a relatively high degree of development. In common parlance, it is a highly 'abstract' term. It is in fact a functional response to the occurrence in experience of a symbol pattern of a certain kind. This I have called the 'temporal' field of symbols. It emerged originally, of course, from non-symbolic experience. The word 'time' is a convenient symbol for use in dealing with whole tracts of this symbolic field. But it is not a label 'corresponding to' some real entity.

I should like to guard here against the possibility of one kind of misunderstanding. I am not *identifying* the past with present memory; indeed, I do not know what this would signify, for it seems to me to involve an invalid hypostatization of symbols and a confusion arising from the characterizing of existents by 'pastness,' whereas all existents (that is, experiential situations) are in fact characterized by 'presentness.' What I am actually saying is that the occurrence of the symbolism of 'the past' is something which is present, which emerges in situations which are present, and which is used in situations which are present.

There is another possible, and related, kind of misunderstanding. It might perhaps be said that, if I carried out my thesis logically, I should actually have to suppose myself ignorant of my own past as well as of other people and things. I think such a statement would involve a confused usage of the term 'knowledge,' and therefore of the term 'ignorance.' It would certainly be an inappropriate and inconsistent usage of terms to say that I was *acquainted with* my own past, for acquaintance involves presentness. But when I say I *know* my past I mean that I find the symbolism of pastness, in its detailed particularity in relation to myself, which arises in present situations to be appropriate and effective in general in the responses it evokes to those situations. In the uncommon particular cases when there is a limited breakdown I should say that part of what I had held to be *knowledge* about my past, and therefore true, was in fact only *belief*, and a false belief at that. Memory had failed, as we say. There is, of course, no certainty of the exact boundary between what is true knowledge and what is false belief in any field, for further experience may necessitate some modification of the symbolism in detail; and in this sense knowledge and belief are relative; there is no certainty of absolute and irrefragable knowledge.

The meaning of knowledge of other people and things brings in some rather different issues, and I shall postpone consideration of these till the chapter on metaphysics.

In the sequel I shall return to the question of 'time' in connexion with its use in various fields of symbol patterns, and to the application of the foregoing to the various problems which arise; but I will now bring this unconscionably long chapter to an end with as brief as possible a summary of the conclusions I have reached.

Summary

Modern philosophy tends to concentrate on theory of knowledge and the problems of semantics, and has become so complex as to raise doubts about its real significance.

There has been a tendency in the past to represent the 'knowing' situation as involving a relation between two entities

—a 'knower' and 'reality'—which are relatively independent of, or 'external' to, one another; whereas knowing and knowledge really consist in processes and products which are integral within experience. This is an example of the fallacy of 'pseudo-transcendence'—widespread in philosophical thinking—in which one factor integral to a situation is considered in a confused way both as abstracted from and as included in the situation.

Thus knowledge is not 'of' or 'about' an external reality but consists in certain aspects of the processes and products of thinking as a constituent of experience, so that the real problem of epistemology is the question as to the part these occurrences play in experience, and not that of the relation between 'knowledge' and 'reality' as commonly understood.

The processes involved in what we speak of as 'thinking' and 'thought' consist of the occurrence in experience of sequences and patterns of images, including essentially images of various types of symbols. The formation of a 'concept' is therefore the establishment of a certain image-pattern. A concept is not a concrete element in the content of experience of a kind different and distinct from sensa and images.

This leads on to the question of 'universals.' My own belief is that the postulate that there are real entities of a distinct type to which the term 'universal' can be applied is unnecessary and cannot be defended. The symbol 'universal' is a response to certain features in experience. Its occurrence does not imply that there are entities 'corresponding to' it, nor is such an assumption justified; and even in terms of 'correspondence' there are serious difficulties in asserting that there are such 'things' as universals. For example, the statement that universals have a type of being of their own, called 'subsistence,' is not significant, for it simply consists in the invention of a term to indicate the supposed type of being of a supposed type of entity, and does not get us any further. Moreover, attempts to indicate the distinguishing characteristics of universals as such—for example, in the 'archetypal' and the 'pure essence' theories—cannot be validated, and we are left with descriptions in purely negative terms which by themselves get us nowhere. All this can be shown to apply to universals of relation as well as of quality.

But the whole problem reduces in the end to the crucial question as to whether there is a universal called 'similarity.' After considering the way in which the term 'similarity' occurs in experience, and the nature of the experiential situations in which it is used, noting in particular that all judgments of comparison asserting similarity refer to elements which are compresent in experience, I was led to the conclusion that the case for a universal of similarity, as commonly understood, cannot be established, and that we can get along quite well without it. In the course of the discussion various ancillary difficulties arising from the assumption of universals made their appearance, and provided additional reasons for dispensing with that assumption, while the assumption of that special kind of universal commonly called a 'proposition,' as distinct from a 'sentence,' was also shown to be unnecessary and unjustifiable.

After all, life goes on without universals. The actual, including the occurrence of symbols, is particular. Particular symbols function in particular experiential situations, and the bringing in of universals as an additional type of entity is gratuitous and unnecessary, for they are not a 'necessity for thought' in the sense that the development of coherent, consistent, and functionally effective symbol patterns is impossible without them.

It is not easy to define the term 'symbol,' and it is therefore better to approach the consideration of symbols by regarding them as exhibited through the situations in which they occur and through their function therein. The prime fact for epistemology is that symbols occur as a result of processes within experience. They are evoked by, and applied in, experiential situations. The detailed investigation of the processes involved, both in the individual and in the race, is the business of psychology.

A term often used in connexion with symbol sequences and patterns is 'abstraction.' But this term is misleading, for we do not in fact separate out isolable elements in experience and attach symbols to them, nor in actuality are there such distinct isolable elements. In particular, Whitehead's theory of the nature of 'abstraction' seems open to fundamental criticism.

The systematic arrangements of symbol patterns in experience are determined by three kinds of rules—namely, grammatical and syntactical, empirical, and logical. The first are produced by a blend of biological, psychological, and historical processes, and vary from one people or race to another. From the point of view of epistemology, they are relatively arbitrary, though their variations bring into prominence certain problems in regard to meaning.

'Empirical' rules determine the particular contents of sentences, and of analogous non-verbal symbol patterns that make statements which may refer to particular instances or take the form indicated by such phrases as 'general principle' or 'natural law'—in which case they are really statements about symbols. This directs attention to the so-called 'hierarchy of languages,' based on the primary 'object-language' and ascending in a scale of 'metalanguages.' A linguistic expression in a metalanguage emerges in experience from experiential situations involving symbols of languages lower in the hierarchy. It is commonly said to 'refer to,' not the language in which it is contained, but only to a language below it. But it is important to remember that, at every stage of the hierarchy, the symbols continue to be sensa and images within experience, and should not be hypostatized into such supposed entities as 'concepts,' 'universals,' 'propositions,' and so on.

'Logical' rules, which are applicable to all cases, are those determining the possession by symbol patterns of the characteristic called 'truth,' though of course they are not by themselves always a *sufficient* condition of truth. When the symbol patterns constituting thought-processes follow the logical rules they are called 'reasoning,' and the processes are then said to be 'rational.'

In passing on to consider the nature of 'meaning,' a clear distinction must first be drawn between 'meaning' and 'definition.' A 'definition' is the translation, for some purpose or other, of a symbol or symbol pattern into another symbol or symbol pattern. It is, of course, related to meaning, but is not itself a meaning.

There is no such thing as *the* meaning of a symbol or symbol pattern, for meaning is something which arises in individual experience, and is therefore to a greater or less extent relative to the individual concerned. Nothing is clearer than the fact that, in all fields, people use words and other symbols with differing meanings, and that this is one of the prime causes of disorder and conflict in human relationships.

In my usage the 'meaning' of a symbol or symbol pattern is a fusion of the experiential situation in which the symbol pattern first emerged, the experiential situations which thereafter evoke from the individual the expression of the symbol or symbol pattern, and the consequent system of associative elements of all types which forms around the latter. The reason for the inevitable variation of meaning from one individual to another is therefore clear, but it seems likely that this variation tends to be least at the two extremes of the hierarchy—namely, in regard to the symbols of the object-language, which emerge directly from non-symbolic experience, and in regard to the highest metalanguages or symbol systems, used for example in mathematics and mathematical physics, which are most remote from the non-symbolic. It is in the intermediate fields of history, politics, economics, psychology, sociology, and, indeed, parts of the sciences—to say nothing of philosophy—that the variation is most marked and most damaging if not fully realized and allowed for.

The nature of meaning and the distinction between meaning and definition are fundamental for philosophy. The question arises as to whether philosophical argument may not be mainly concerned with the usage of symbols in relation to one another and to their emergence in experience rather than with the nature of reality. The point can be illustrated by consideration of such questions as "What is the nature of 'the good'?"

The view advanced with regard to meaning is by no means such as to render the occurrence of 'communication' between individuals unintelligible, but it certainly serves to bring out what is perhaps the main reason for the patent and widespread disagreement and conflict between different people which is, and always has been, a common feature of the world. This state of affairs is aggravated by the existence of different languages—that is, by the fact that similar experiential situations evoke different symbols from different human groups.

Difficulties of a different kind arise in connexion with certain paradoxes; but a consideration of, for example, the so-called 'paradox of analysis' shows that these difficulties are not inherent in the nature of things but are of our own making, either because of inappropriate usage or because of usage governed by a stupid rule (which we have ourselves made) or both.

Passing on to the consideration of 'truth,' the first point to note is that the question "What is truth?" is strictly without significance. For it I substitute the question, "What are the characteristics of those sentences in regard to which I should use the term 'true'?" The term 'sentence' is used throughout the discussion rather than the term 'proposition,' for reasons already apparent.

I distinguish three characteristics of 'true' sentences. The first is that the sentence has emerged within the experience of an individual. In this sense—and *only* in this sense, without any further implication—it might perhaps be said to 'correspond to' certain other elements in the experience of the individual concerned. But this use of 'correspondence' is in no way similar to its use in the so-called 'correspondence theory of truth.' In particular, there is no ground whatever for holding that the structure of sentences or of language in general gives any information about the structure of something else called 'fact,' or 'reality,' even supposing 'structure' is an appropriate term to use—and there are reasons for doubting this—in connexion with the latter.

The second characteristic of a 'true' sentence is what may be called 'verifiability.' Whether verifiability 'in principle,' without actual 'verification,' is sufficient is a matter of some doubt. Certainly the justifiable *acceptance* by an individual of a sentence as true involves actual verification, and for this and other reasons I am inclined to think that the most appropriate usage of 'true' is such that truth involves verification, and not merely verifiability in principle.

Verification consists in the comparison of two sentences, or of analogous symbol patterns of symbols other than words. We cannot significantly speak of a direct comparison between the symbols and the non-symbolic content in the verifying experience. The symbol patterns compared are necessarily compresent by the very nature of the case, one of them generally being a memory-image of past symbol sensa or images.

The third characteristic of true sentences is what may be called 'compatibility.' Here two preliminary points arise. The first—which really also arises in connexion with verifiability—is that the characteristic of being true cannot be significantly ascribed to a single completely isolated sentence, but only to whole systems of sentences or other symbol patterns. The second point is concerned with the nature of logical rules.

Logical rules or 'principles' convey no information but have been developed to do a particular job—namely, to lead to the making of appropriate responsive adjustments in experiential situations. They are simply rules of definition or procedure relating to the arrangement of certain symbols and the translation of these into one another. They work so well because they have been made to work, and their sense of 'necessity' or inevitability for us may well be explained by the fact that they constitute a most fundamental and general way of dealing with symbolic experience, a way which has developed in human experience from its very beginnings. Their relatively arbitrary and 'circular' nature is shown among other things by changes such as the discarding of certain aspects of Aristotelian logic in favour of modern relational logic, and developments such as that of 'multi-valued' logics in which a sentence may have more than the two 'truth-values,' truth or falsehood. Examples like this show that we are here dealing with conventions and rules of definition.

The third criterion of the truth of a symbol pattern—namely, 'compatibility'—involves feeling, for symbol patterns do not, in and by themselves, contain any indication of incompatibility. The elements of a symbol pattern are incompatible when the tendencies to which they give rise would result in responses which would be in conflict, with its accompanying feeling-tone, and which could not therefore actually be compresent. Hence, if a system of symbol patterns is to be 'true' it must be the occasion of harmony, not conflict, in the experience of the individual concerned—harmony, with its accompanying associated feelings of adjustment, well-being, and fulfilment. It follows that, for the individual, truth is not something which is 'known,' but rather something which is achieved —achieved up to a point if the symbol patterns accepted by the individual are consistent or compatible, and so productive of harmony rather than conflict. Further experience leading to new symbol patterns may, however, necessitate a revision of the entire system.

Each of the three criteria of truth is necessary but not by itself sufficient. Verification is not sufficient, for it is sentences or other limited symbol patterns which are ostensibly verified, and these are not independent but always form part of wider symbol systems without which they would lose much, if not all, of their significance. Nor is the compatibility of the elements of a symbol system sufficient, for no such system is complete, and incompatibility may occur when attempts are made to extend its verification to a wider field. Hence we may conclude that all three criteria of truth are necessary, and that truth is something which is gradually achieved, growing and developing within the experiences of individuals.

It follows that there is a sense in which there is a different truth for each individual, remembering that truth must be carefully distinguished from fact. We cannot significantly speak of incompatibility within fact, or of a difference of fact for different individuals. But truth, on the other hand, is a characteristic of symbol systems which occur as happenings within individual experiences. These symbol patterns are linked with feeling, and with their meaning as constituted by the experiences from which they emerge. Hence differences of *meaning* may make similar symbol patterns true for one individual and false for another. This was illustrated by examples taken respectively from politics and legal administration. It then appeared that the condition of ordered existence in a community, so far as this is affected by symbols, was not identity of the meaning and the truth-value of similar symbol systems for different members of the community, but that the behaviour responses of individuals to symbol patterns should be such as to produce a sufficient degree of harmony and freedom from conflict in the experience of individuals. It is, however, clear that the degree of harmony will be related to the nearness with which meaning of the same symbol patterns for different individuals approach one another.

The ultimate vital question for each of us in judging the truth-value of a sentence or a symbol system *S*, is, "What happenings in my experience would evoke from me the statement 'Yes, *S is* true'?" The answers to this question given by different individuals may—and often will—vary very considerably, and this is one of the chief causes of the disputes and confusions which mark human life. A wider realization of this fact would itself do much to reduce such troubles and to foster a greater degree of harmony in the individual and the community.

In explaining my usage of the term 'knowledge' I first expressed regret that the same word 'knowledge' was commonly used in both the phrases 'knowledge by acquaintance' and 'knowledge by description,' for the two things distinguished by these phrases are radically different. I therefore proposed to substitute for the former—which refers to immediate 'apprehension' without intermediary—the term 'acquaintance' alone, and to replace the latter—which involves the mediation of symbols—by the term 'knowledge' alone, though my usage of 'knowledge,' while congruous with the common usage of 'knowledge by description,' would not be precisely identical with it.

To say that an individual *X* is acquainted with *A* is simply to say that *A* is a part of that individual experience which we speak of as *X*'s; and, as neither knowledge nor acquaintance have meaning except in relation to the experiences of individuals, I proposed to call those symbol patterns in the experience of an individual which are true, in the sense and according to the criteria previously explained, the 'knowledge' of that individual.

Knowing or knowing 'about' is thus essentially a relationship within an individual experience—ultimately between the symbolic and the non-symbolic, though generally with many intermediary relationships of the symbolic to the symbolic—and not that of some entity (the 'knower') to an independent 'external' reality. When a person speaks of knowing about a historical event, or about events news of which is communicated to him by others, he is only stating that a certain symbol pattern exists in his experience—with, of course, the associated imagery and other responses which it evokes.

The essential function of knowledge—even including knowledge which is said to be pursued 'for its own sake'— is to facilitate adjustment to life, with its accompanying feeling of harmony, satisfaction, and fulfilment. But although knowledge and thought increase enormously the scope of experience, and greatly aid adjustment at all experiential levels, adjustment certainly occurs very frequently, both in human beings and in non-human organisms, in circumstances in which it could hardly be said that knowledge and thought are involved. In such circumstances the term 'skill' is perhaps the most congruous and appropriate to apply to the ability of the organism to adjust its responses suitably to the environment.

Knowledge is not a substitute for acquaintance, nor in itself any kind of equivalent of acquaintance. It is a system of true symbolic patterns in experience. Some symbol patterns may be more or less provisionally accepted by the individual as if they were part of his knowledge, though they cannot be certainly seen to satisfy all the criteria of truth. These patterns constitute the individual's 'beliefs'; but the investigation of the nature of belief and 'opinion' is a matter for psychology rather than for epistemology. However, I suggest that the development, modification, and discarding of doctrines and hypotheses in all fields of knowledge and belief becomes much more intelligible when viewed as an attempt to develop a symbol system which will be consistent and effective in the responses it evokes, rather than as the attempt to discover the 'real' nature of supposed entities beyond experience. For example, we might appropriately regard the 'wave' and the 'particle' theories in fundamental physics as symbol systems both of which are functionally effective up to a point, though we find it difficult to suppose that there are unexperienced entities which partake of the natures of both particles and waves. It is true that there comes a point where we are impelled to try to harmonize the two symbol systems as such, but the prospects of success in this are much increased if there is no unwarrantable intrusion of external entities to which the symbols are supposed to 'correspond' or 'refer.'

Proceeding to the consideration of the nature of 'analysis,' I pointed out that in common usage this was concerned with the 'structure' of a complex whole or system of interrelated parts. But a difficulty was seen to arise over the regarding of these parts as separate and isolable elements, though the ordinary notion of analysis involves this. It was suggested that this—and other common difficulties and paradoxes which arise in discussions on the question of structure and related topics—are due to the invalid belief that symbols 'correspond to' definite non-symbolic entities, a belief which is in any case quite unverifiable. Indeed, all statements about the 'form' or 'structure' of 'facts' involving non-symbolic entities really amount to no more than statements about the structure of symbol patterns. This was illustrated by an example.

The truth is that symbols are not labels affixed to definite entities but tools constructed for a certain purpose which develop as such in experience, and the real question is not as to what entities 'correspond to' particular symbols but whether —and how far—symbol patterns perform their function effectively. When symbols are regarded in this way most, if not all, of the common difficulties associated with them disappear, as was shown by a discussion of some well-known problems, while a consideration of the notion of 'correspondence' showed that it led to a view of symbols resulting in a vicious infinite regress, or alternatively to modifications of such a kind as to convert it into the theory of symbols which I am myself advocating.

For similar reasons, the 'constructionism' theory for the justification of physics, propounded by Russell and Whitehead, was shown to be ill-founded and unnecessary, the ordinary symbolism of physics being much more effective and much less clumsy than the elaborate systems of constructionism, judged by such criteria as those of accurate prediction and the determination of action to the successful achievement of desired ends.

Some consideration was then given to so-called 'real' definition, which was taken to be the relating, as a response to some experiential situations, of two symbol patterns which have emerged in experience through processes following different routes; whereas 'formal' definition is the purposive development in experience of a rule of translation of one symbol pattern into another in order that the symbolism may function more effectively. We cannot speak significantly of the 'truth' of a formal definition, but the truth of a 'real' definition is determined by the usual criteria.

I concluded that analysis is concerned only with symbols, and is in no wise some kind of dissection of non-symbolic content or of anything outside experience. The same applies to what we call 'form' or 'structure,' for the investigation of these terms always reduces to a study of symbol patterns and their internal relations. For there is no substitute for acquaintance. Reality is something to be experienced immediately, and not '*known*' *through symbols which somehow* '*correspond to*' it. Knowing, though functionally effective for the purpose of adjustment, cannot give acquaintance with one part of experience through acquaintance with another (symbolic) part.

To the objection that, according to my own argument, symbols being sensory are merely pseudo-entities I should agree, but would reply that no difficulty arises here unless we commit the fallacy of pseudo-transcendence by supposing ourselves to be viewing experience from the 'outside'; but this raises metaphysical issues to be considered later.

Passing on to further consideration of the term 'experience,' I said that, in my usage, the term is a symbol evoked by my very existence as a unitary whole. Both 'experience' and 'existence' express my type of being, and the circularity here involved is not only inevitable and ultimate but irrelevant on the functional view of symbols, the final criteria on this view being the contribution of the whole symbol system to harmonious adjustment in experience, both symbolic and non-symbolic. It is only on the 'correspondence' view of symbols that difficulty arises in this context.

The meaning of the word 'existence'—or any functional equivalent of it—is itself a condition of there being any symbols at all, and it is the fact that the symbol 'existence' emerges from what, as a whole, we call 'experience' that links experience and existence so closely. Moreover, a genetic study of the development of the existence symbol shows, I suggest, that it emerges originally as self-existence—namely, from there being individual monadic experience. Such considerations, together with our experience of different types of sensory situation and of deprivation of any of our 'senses,' make intelligible the notion of different types of experience, both human and non-human. I considered the meaning of this in terms of our own experience, and also pointed out that no meaning could be given to direct apprehension of the nature of types of being other than existence, for such apprehension would involve acquaintance, and therefore experience, which is ruled out by the nature of the case.

I concluded this part of the discussion by giving reasons for the appropriateness of using the terms 'monad' and 'monadic' in connexion with experience. These terms, being closely associated with such words as 'unit' and 'unitary,' I find especially suitable in application to my whole experience-situation, with its 'uniqueness,' 'exclusiveness,' and 'completeness.' Symbolically stated, my experience is, for me, the 'universe.'

A term which plays an important part in connexion with the handling of experience—an increasingly important part, in fact—is 'probability.' As in the case of truth, questions of the form 'What is probability?' or 'What is the nature of probability?'' are non-significant. The significant question is as to how we use the term 'probability' and apply it, with its associated symbol system, to the handling of experience.

After tracing the development of the *meaning* of 'probability' from the occurrence in experience of the repetition of patterns of associated events, I pointed out that in order to associate probability with some kind of numerical measure it was necessary to proceed to a precise *definition* of the term. Though the various definitions which have been proposed are often regarded—wrongly, for the reasons I have given—as theories about the 'nature of probability,' what we are in effect led to are certain rules of procedure which, in view of their origin, may appropriately be called 'probability rules.'

Leaving aside Keynes's treatment of probability as the 'logic of uncertain inference,' owing to certain theoretical objections and difficulty in practical application, it appears that probability rules fall into three main types, according as they are associated with theories which may be named respectively the '*a priori*,' the 'sub-aggregate,' and the 'frequency' theories. Consideration of these theories, however, seems to show that if we are to get beyond tautology or circularity we are led in the end in each case to a frequency theory.

The *formal* statement of the frequency theory would be to the effect that if, from a set of initial conditions *C*, a certain event *E* may sometimes—but not in general always—follow, then the 'probability' of *E* given *C* is the limit to which the ratio of the number, or 'frequency,' of the *E* cases to the total number of cases tends as the series of trials is indefinitely prolonged. But to avoid difficulties arising in connexion with the defining of the initial conditions and with limits and the number and lengths of the series of trials, and so to get a practical working rule, it is necessary—and fortunately possible on the frequency theory—to modify the statement to the effect that, if p is the proportion of the total number of *observed and recorded* cases of the occurrences of an event, or group of events, *C up to a given time known to an individual*, who is concerned with the matter, in which *E* also occurs, then 'the probability *at the stated time for the individual concerned* of the occurrence of *E* given *C*' is defined to be p. This gives a working 'probability rule' which can be applied and tested in practice. Evidently the value of p is subject to revision as time goes on.

We are not, then, concerned—and cannot significantly be concerned—with some 'entity' or 'factor' 'corresponding to' the term 'probability,' but with a particular type of rule—which for practical effect can be stated only in terms of frequencies—for controlling certain kinds of action by individuals in connexion with certain types of association of events. Moreover, it is clear that our statements in this context are not really about single events but about series of occurrences of events, while situations in which the use of the term 'probability' is concerned involve incompleteness of knowledge of the 'initial conditions' *C*, or the truth of indeterminism, or both.

If the value of p at a given time for a given individual is unity, this does not, of course, in view of the way in which p is defined and of its being subject to continuous revision, connote *certainty* for the future, but I speak of such a limiting case as an 'inductive' rule, and in the interests of simplicity and clarity—not always sufficiently considered in discussions on induction—I limit my use of the term 'induction' to the emergence of an inductive rule in experience.

Any attempt to discover whether there are any circumstances in which the invariable association of two events *A* and *B* in the past—using the term 'event' for this purpose in a rather loose and widely drawn way—can be regarded as guaranteeing their invariable association in the future involves the assumption of the possibility of a further underlying general principle of wide application. Perhaps of the various names which have been given to such a hypothetical principle the best known is the 'Uniformity of Nature.' Unfortunately, however, this principle is not only hypothetical but would be so whittled away by the precise specification of the circumstances in which it would be operative as to become of null effect. It is therefore uncertain how long an inductive rule will remain an inductive rule—that is, how long the value $p = 1$ will be sustained by further experience.

If, when an association breaks down, we try to correct our rule by modifying the specification of the 'initial conditions' we are no better off, for we thereby embark on a process which in the end must lead to the statement, not (say) that the same cause produces the same effect, but that the only criterion of the 'same cause' is that it produces the 'same effect.' The principle of the Uniformity of Nature, and its cruder statement 'same cause, same effect,' thus become empty tautologies.

Nevertheless, one cannot help feeling that there must be something behind the recurrent urge to discover a principle such as that of the Uniformity of Nature. I believe that the true and significant statement we are looking for here is simply that 'similar instances occur,' for I cannot imagine existence—

which is for us experience—of such a kind that the statement 'similar instances occur' would be false. Moreover, I think that this statement provides all that is needed, and that any difficulties arising here from complexity of symbol patterns disappears when we remember that the experience of the individual is actually an indivisible unity. In view of the nature of symbolism, the occurrence in experience of the symbols 'similarity' and 'difference' is not incompatible with the indivisible unity of experience, and the great advantage of the principle of probability rules over the principle of the Uniformity of Nature is that it arises from, and allows for, just that combination of similarity and difference which is inherent in the very nature of experience.

Finally I considered certain general features of the problem of time, leaving the question of the function of 'time' in particular contexts to be dealt with in later chapters.

Most—perhaps all—of the difficulties and paradoxes which arise in the discussions of time arise, I believe, from a misunderstanding of the nature of symbolism, or, considered from another angle, from the fallacy of pseudo-transcendence. The terms 'present,' 'past,' 'future,' and 'time' itself, emerged from, and are evoked by, experience, and are applied in the handling of experience. All experience is characterized by 'presentness,' and the term 'past' and its associated temporal symbols have been developed for dealing with aspects of experience involving a particular kind of relation between elements, especially sensa (including symbolic 'records') and memory-images, which are compresent. Similar considerations, with appropriate modifications, apply to the term 'future' and its associated symbols. The general usage of the term 'duration,' on the other hand, is, I believe, equivalent to my usage of the term 'existence,' but in so far as we introduce measurement in connexion with it we are weaving it into the symbol pattern involving order and succession.

The word 'time' itself emerges comparatively late in experience, being a functional response to the occurrence in experience of a certain type of symbol pattern—the 'temporal' field of symbols—which emerged originally from non-symbolic experience. There is no question of real entities 'indicated by,' or 'corresponding to,' temporal symbols.

A theory about the nature of symbols, like any other theory, is necessarily expressed in symbols, and for this and other reasons it might perhaps be objected that the views I have been putting forward involve circularity. I should be quite ready to admit this, but would regard it as a justification rather than an objection. For, alternatively, circularity can here be regarded as a kind of completeness in itself, while any attempt to secure non-circularity in the symbol pattern constituting a theory leads to the fallacy of pseudo-transcendence, since the individual positing the theory is not an 'external' observer watching the universe and reporting on it but is himself part of the situation of which the theory (symbol pattern) and the circumstances in which it emerges are also parts. Moreover, the criteria of the effectiveness—which includes the 'truth'—*of a theory is not 'correspondence' with reality but the production of what I shall call 'eutonic' feelings in association* with the responses which the theory evokes through the interrelatedness of its symbols and its relations with, and practical application to, the rest of experience. By 'eutonic' feelings I mean those in connexion with which we use such terms as 'pleasure,' 'contentment,' 'satisfaction,' 'sense of harmony,' and so on, as opposed to the 'dystonic' feelings of pain, conflict, dissatisfaction, and maladjustment.

In trying to frame a theory which we regard as 'satisfactory' or 'satisfying,' whether this be, for example, a scientific, metaphysical, political, historical, or religious doctrine—or a philosophy of life—we are in fact aiming at the development of a symbol pattern which produces eutonic feelings, and this is the ultimate criterion.

It is perhaps worth pointing out that all discussion is circular in the sense that we can only judge the 'correctness' of its results by reference to what we start from. This is particularly evident in discussion about what we call—though, for reasons I have given, this is misleading—'the nature of so-and-so.' For example, suppose we are arguing about the nature of the 'good' and we conclude that the good is *a*, *b*, *c*. . . . This would have no significance or effect unless we had started from some accepted statements about what 'the good' is. *Otherwise the symbol 'good' would be a mere mark or noise.*

In conclusion, let me draw attention to a distinction which is of some interest in relation to the discussion in this chapter—namely, that between what are sometimes called the 'emotive' and the 'informative' uses of symbols in general and language in particular. In the emotive use of symbols we are working on the emotions of other people, wittingly or unwittingly, to evoke certain responses at which we may or may not be deliberately and precisely aiming. Many political speeches, for example, involve a marked element of this kind, and the emotive use of words and other symbols has no *necessary* connexion with truth. In the informative use of symbols, on the *other hand, we are seeking to convey knowledge,* or what we *believe to be true. Those who use the word 'informative' in* this way are, of course, generally speaking in terms of a 'correspondence' theory of knowledge and truth, the validity of which I have given reasons for doubting.

Now, what seems to me to be important here is not the difference between the emotive and the informative uses of symbols but the resemblance. Both are for the purpose of evoking responses, though in different types of situation, and the so-called emotive use of symbols illuminates considerably the nature of symbolism in general. In both cases the aim is to produce responses associated with some kind of satisfaction, or eutony, though the criterion of this differs somewhat in the two cases owing to the difference in the type of situation. In the informative case the criterion is 'truth,' defined according to the characteristics of 'true' statements which I have described. In the emotive case the criterion, for the user of the symbols, is effectiveness in producing (say) a social or personal situation which is for him satisfying and eutonic. It will, of course, be realized that, owing to the complexities of human nature and its expression, the use of symbols not infrequently exhibits both emotive and informative aspects at one and the same time.

In the chapters which follow I shall approach the problems presented in specific fields from the point of view of the general theory of knowledge I have developed in this chapter, with especial reference to the view of symbolism which I have suggested. I shall examine the symbolism of the theories which have been put forward in each field and shall try to develop where necessary alternative theories which seem to me to be satisfying in their precision, economy, consistency, and practical application in the handling of experience.

CHAPTER III

Fundamental Physics

I HAVE chosen fundamental physics as the first field in which to consider the application of the general theory of knowledge set out in the last chapter for two reasons. On the one hand, it is concerned with what would commonly be called the most general and fundamental types of interrelationship expressed in symbolic patterns arising out of certain important fields of experience; and, on the other hand—and partly by reason of this—it provides what I think is perhaps the clearest confirmation of the view of the nature of symbolism which I have suggested. Moreover, if this alleged confirmation is understood and accepted it will, I believe, make the application of my theory of symbols to other fields, where symbolic definition is generally less precise, more readily comprehensible.

During recent times physics has been moving steadily away from a position in which it was based on the supposed reality of certain entities which were not directly observable—such as molecules, atoms, protons, electrons, ether, and so on—having specific properties which included interaction through gravitational and electro-magnetic 'forces,' towards a position in which the assumption of the existence of such entities is regarded as unnecessary, and in any case of very doubtful validity, the real business of physics being to develop a system of symbols which would be coherent and consistent in itself and effective in dealing with the relevant fields of experience. The 'real' entities of the old physics have been replaced by the symbolic operators and dummy 'vector-carriers' of the new, and, although many of the words which were formerly supposed to name such actual entities continue to be used, it is not with their original, and somewhat vague, *meanings* but rather with increasingly precise *definitions* as symbolic factors in a consistent symbol pattern which has emerged in experience, and which we seek to make as adequate and effective as possible in the responses which it evokes in the relevant experiential situations. In its quantitative form physics is more and more concerned with what measurements we should make—and these are, of course, expressed in symbols—and what operations we should perform on these measurements to produce other symbols of a quantitative or numerical kind, in order to evoke appropriate responses in situations with which we are concerned.

Old and New Theories

One of the first supposed realities of traditional physics to lose its existential status was that known as 'force.' This happened when it was realized that although force symbols, as symbols, had (and still have) a useful place for certain purposes and at certain stages in the statements and calculations of physical theory, they necessarily vanish from the fundamental equations of physics. But this is now an old story, and it will be more topical to illustrate the contrast between the old and the new physics, and its relevance to the nature of symbolism, by two related examples arising from comparatively recent developments.

My first example refers to what are known respectively as 'classical' and 'quantum' physics. 'Classical physics,' as that phrase is now used, refers to the legacy of traditional physics as it appears in a modern version corrected and systematized up to date. It is couched very largely in the terms of traditional physics, and it continues for the most part to apply effectively in the realms of field theory and molar physics—that is, in those parts of physics which deal respectively with happenings in portions of space-time unoccupied by matter and with the properties and behaviour of pieces of matter of macroscopic, and therefore observable, proportions. 'Quantum physics,' on the other hand, refers to those rapid and quite novel developments which have sprung from the 'discovery'—and for the moment I use this word with reservation and without prejudice —of the quantum of 'action,' in the accepted dynamical usage of that term, as a fundamental and indivisible spatio-temporal 'atom' or unit. Quantum physics quickly showed that its results contradicted classical field theory in certain important respects—*e.g.*, in regard to the wave theory of light. It also contradicted the idea, which had previously been more or less taken for granted, that classical molar theory could be extended without any modification in principle to apply to the properties and behaviour of microscopic, and therefore unobservable, particles of matter—*e.g.*, in the picturing of an atom as a miniature solar system with the negative electrons moving in regular orbits around the positive nucleus.

There was, however, one important and significant amelioration of these contradictions. It was found that in certain cases where very large numbers were involved the principles of quantum theory tended to limits which were identical with the principles of classical theory. Except in such limiting cases, however, physics was faced with a position in which one set of principles, while highly consistent and effective in one field of observable phenomena, was in contradiction in its symbolic statement and rules of procedure to another set of principles equally effective and consistent in a different field of observable phenomena. In Sir William Bragg's well-known statement, which, though metaphorical, appropriately summarized the situation in which physicists found themselves, "We use the classical theory on Mondays, Wednesdays, and Fridays, and the quantum theory on Tuesdays, Thursdays, and Saturdays."

My second example, which arises from the first, refers to the distinction between the 'wave' and the 'particle' theories of matter. Briefly stated, the fact is that in certain circumstances matter seems to behave as if its ultimate constituents were in the nature of waves of some kind, while in other circumstances it seems to behave as if it were really made up of microscopic particles. We can quite happily and effectively use two different sets of principles in the two sets of circumstances, but unfortunately the two sets of principles are in the end contradictory.

Now, it seems to me that the facts I have been describing show quite clearly that in developing a theory of fundamental physics we are not making statements in symbols which 'correspond to' certain real entities but are simply engaged in framing, as a response to certain experiential situations, a consistent symbol pattern felt to be harmonious with those situations, and which evokes from us responses which are effective in other experiential situations, symbolic and non-symbolic. If our symbols really corresponded to realities, in the sense in which—if it can be made to have any sense—the statement usually seems to be intended, it would not be possible for our symbol pattern to contradict itself and yet to work at times effectively. But if our symbols are just responses—responses originally to the non-symbolic—which evoke other responses, they may quite well be effective in certain circumstances, although there are contradictions in the symbol pattern considered as a whole. The contradiction appears, in fact, in a new light, and our reasons for attempting to resolve it are not because it entails a breakdown in practice, for it does not if we apply it according to circumstances. The contradiction is involved, not in response from the symbolic to the non-symbolic, but in response from the symbolic to the symbolic, and we are impelled to try to resolve it partly because of the dystonic effect associated with conflict in symbolism, as with any other conflict, and partly because so long as the contradiction remains the symbol system may not turn out to be sufficiently comprehensive in its application to cover all cases that may arise. Fortunately, considerable progress has been made towards a resolution of the contradiction, notably in the work of Eddington.[1]

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[1] See *Relativity Theory of Protons and Electrons* (1936) and *Fundamental Theory* (1946), both published by the Cambridge University Press.

I have not so far referred specifically to that other modern revolution in fundamental physics, the principle of relativity, as it is not relevant to the immediate point—the contradictoriness but efficacy of contemporary physics—though it is of course involved on both sides of the fence. But it will be necessary to consider it fully when approaching the whole question of the symbolism of physics *de novo*. Before doing this, however, I should like to follow a little further the implications of some of Eddington's work.

The Constants of Physics

A great part of Eddington's later work was concerned with the investigation of the nature of the ultimate constants of physics; such, for example, as the mass of the electron and of the proton, Planck's constant, the constant of gravitation, the radius of space, and, perhaps in some ways most significant of all, the so-called 'cosmical number'—that is, the number of fundamental particles in the universe.

Such constants as these were traditionally regarded as being inherent in the nature of an 'objective' 'external' world, independent of the 'observer' or individual experient, which could be 'discovered' by observation, measurement, and calculation. Briefly, what Eddington showed was that, so far from this being so, the values of the physical constants necessarily followed from the nature of the observations which form the primary material of the study of physics, and from the nature of the symbolic apparatus emerging from these observational experiences and determining responses resulting in subsequent observations. In other words, if we proceed to 'observe' the universe in that kind of way which we call 'measurement,' and to apply the symbolism which results from this, we shall inevitably be led to certain fundamental constants with specific values, these being inherent, not in a physical reality independent of us but in the process of measurement and the symbol system resulting from it. It is therefore possible, by considering the latter, to calculate directly the values which the constants *must* take, and to compare the values thus obtained with the values found from observation conducted by the usual methods. In *Fundamental Physics*—his last work—Eddington succeeded in extending this process over the whole range of physical constants, with a remarkable degree of agreement between observation and direct calculation, his crowning achievement being the direct evaluation of the cosmical number.

I spoke of the peculiar significance of the cosmical number, for it might be supposed that, even if all else were absorbed within observational and symbolic experience, the number of fundamental particles in the universe would remain as an ultimate core of real objectivity. But it transpires that if the number of particles is regarded in the way in which the nature of physics—from which alone it derives its significance—compels us to regard it, it is just as much involved in the nature of observation and symbolism as any other of the physical constants.

The number of dimensions of space-time might be regarded as one of the constants of physics. Here again it has been found possible to show that this is not something inherent in the nature of an 'objective reality.' On the contrary, it necessarily follows from the kind of symbolism which has developed in this context.[1] For physics the space-time continuum is the field of a relation which may be called 'displacement,' and the symbolism, including graphical representation, which has been evolved in connexion with it—an algebra and geometry with an apparatus of 'frames of reference,' 'co-ordinates and co-ordinate axes,' 'intervals,' and so on—necessarily by its very nature involves four-dimensionality. It also necessarily requires that one of the dimensions should be different in type from the other three, while there is a fifth dimension which can be regarded as involving the 'curvature' of four-dimensional space-time, or alternatively as related to scale-variation—these are in the end two ways of saying that same thing.

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[1] *Cf.* Eddington, *Relativity Theory of Protons and Electrons*, p. 3 and p. 325, and *Fundamental Theory*, p. 124.

It is perhaps worth quoting here an example mentioned by Eddington in one of his earlier works [1] which illustrates well the nature of symbolism as shown in the field of fundamental physics. Eddington says that, in its space-time track relative to the sun, the "earth goes anyhow it likes." This somewhat unusual statement means that, if we suppose alternative tracks for the earth, our measure standards will adjust themselves to the corresponding space-time metrics—which will vary for different tracks owing to the effect on the 'gravitational' (*i.e.*, the metrical) field of the relative positions of sun and earth—in such a way that the results of our measurements will come out the same in every case. For the standards of measure adjust themselves to the curvature of space-time. At least, that is one way of putting it, but what is really implied is that we are getting information, not about an 'objective' entity space-time, containing certain macroscopic bodies, independent of the observer, but about the relationships between symbols, including measure symbols, which emerge in a certain field of experience.

What in fact occurs, therefore, in the investigations of physics is the emergence of certain symbols in the experiences of individuals ('observers') which in their turn evoke responses leading to the emergence of other symbols, including the quantitative and numerical symbols arising from the process called 'measurement.' These evoke further responses in the form of putting ourselves and our instruments into certain circumstances leading to further 'observations' and 'measurements' which result in symbols which are compared with other symbols previously obtained, the last part of the processes being what we call 'verifying prediction.'

This can be well illustrated by the case of the 'discovery' of a new planet. Experience involving observation and measurement evokes symbols which it is found impossible to fit consistently into the existing symbol system. This evokes responses consisting in the manipulation and modification of the symbol system so as to secure consistency. This results in a further train of responses leading to the observation of part of the sky at a certain time and place, from which there emerges a symbolic statement (*e.g.*, 'There is a bright spot at a certain point in the sky,' indicated by certain numerical symbols—'co-ordinates'—derived by applying the rules of the symbol system) which is compared with the modified symbol system into which it is found to fit consistently. The existence of the new planet is then said to be 'verified.' It will be noted that all this simply involves responses within experience to content which is partly non-symbolic and partly symbolic.

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[1] *The Nature of the Physical World* (Cambridge University Press, 1928), p. 148 *ff*.

The point I wish to emphasize here is that all the foregoing illustrates, not the nature of physics in particular, but the nature of symbolism in general, and the same considerations therefore apply in all fields of knowledge and experience.

So far I have been speaking more or less in the customary language of physics, assuming the general background of that field of knowledge as it stands to-day. But I shall shortly go on to consider the nature of fundamental physics *de novo*. Before doing so, however, I will make a brief digression to consider the supposed difficulty raised by what is sometimes called 'observational interference.'

Observational Interference

It is quite commonly held that the act of observation and the operation of the instruments used in observation and measurement—and, to be consistent, this must include the sensory apparatus of the human organism itself—inevitably 'interfere with' the 'objective reality' which we are trying to observe, so that the results recorded as characterizing that reality are in error to a greater or less extent; greater, in the case of the microscopic.

It should first be pointed out that the supposed error is different in kind from, for example, the 'error' in the temperature recorded by a thermometer due to the heat capacity of that instrument, for this error arises simply from interrelations within what is, as we say, 'being observed,' and can be largely corrected. The 'error' with which we are now concerned is supposed to be inherent in the nature of observation itself.

Now, this notion of observational interference seems to me to be based on a view of the nature of knowledge and symbolism of a kind which I have given reasons for rejecting, in particular the implication in that view that the 'knower,' or 'observer,' and the 'known,' or 'observed,' are independent entities such that the interaction between them may alter the nature of what is observed, so that the result gives rise to a partially false impression of the 'real' nature of the observed. But, as I have pointed out, 'knowing' and 'observing' are processes within the experience of the individual, and though in our verbal symbolism we may separate the observer from the observed, the experiential situation in which the symbolism arises is an integral unity. It follows, therefore, that the symbol system which constitutes knowledge in the field of physics is a response to a situation of which the whole process of observation and measurement is an integral and inseparable constituent, the resulting symbol system being applied to deal with the relevant experiential situations themselves and not with a supposed reality independent of the observer and experience. What we are doing, then, is not acquiring knowledge or information about an 'external' independent reality, but developing effective ways of dealing with experiential situations in which the observer and his instruments are necessarily and integrally involved. Moreover, it cannot be said that observational interference renders prediction inaccurate, for what we in fact do is to predict the *results of specified observations and measurements from the results of other observations and measurements*, the symbol system of physics consisting in statements of the interrelations of such results.

We have here, in fact, another example of the fallacy of pseudo-transcendence, for the notion of observational interference as something which falsifies our knowledge to some extent leads to an inconsistency, in that the observer, who on the one hand is inseparably involved in the observational situation, is regarded on the other hand as transcending that situation and attempting to probe a reality beyond experience. The notion of observational interference is therefore, I suggest, unwarranted and irrelevant; the facts—facts of observation—which have led to its intrusion into (especially) microscopic physics can be adequately dealt with without introducing it.

The Nature of Fundamental Physics

I will now consider what seems to me to be the nature of the material with which fundamental physics is really concerned. Physics, like every other field of knowledge, developed originally in a somewhat haphazard way, and it is only comparatively recently in human history that systematic attempts have been made at a comprehensive collation of its results into an orderly and coherent system. In this task physics has advanced considerably further than most other branches of knowledge, but it nevertheless still shows obvious gaps, discrepancies, and even contradictions.

It will be necessary to start from the experiences of individuals from which symbols which can appropriately be said to be characteristic of physics actually emerge, and to develop from this a system of key symbols which satisfies certain criteria and which, when it reaches a certain stage, can be shown to link up with current physical theory so far as that has been validated. From that point the matter ceases to be one with which epistemology and philosophy of science are directly concerned.

The criteria which the symbol system, like any other true and effective symbolism, must satisfy are:

(1) It must be self-consistent—that is, it must not involve any incompatibility as defined in the last chapter.

(2) It must be consistent with other symbolic fields.

(3) It must be harmonious with non-symbolic experience—that is, the experiential situations involving physical symbols as responses to the non-symbolic and those involving responses, evoked by physical symbols, which affect the non-symbolic must be characterized by eutony, in that they are pervaded by a feeling of harmony, satisfaction, and fulfilment.

My main thesis will be that fundamental physics is concerned with the most general type of relations between 'events,' and I must first explain my usage of that term.

Events and States

I shall limit my consideration to the sensory visual field, for it is this which provides the data of fundamental physics. Not only the empirical observations involved in the study of physics—and for brevity I will now use this term as synonymous with 'fundamental physics' except where otherwise indicated—but also the processes of measurement connected with these deal with visual sensa. Physics starts from the sensory experiences of actual—and not dummy or hypothetical—observers, and it is to this experience that its results must ultimately relate. I use the symbol 'observer' in relation to the individual experience as congruent with the symbol 'I,' which emerges in the individual experience. In philosophical thinking other congruent symbols are those such as 'subject of experience,' but I shall not pursue the point further here, for that is not necessary for my present purpose, though I shall return to it in the chapters on psychology and metaphysics.

As I have already emphasized on more than one occasion, the individual experience is a unity, and in order to derive a physical theory from that unity it is necessary to develop a symbolism which constitutes what we call an 'analysis.' The first—and in some ways the most significant—stage in this is a division into 'events.'

I define an 'event' as a compresent visual field in a monadic experience, or, if you like, in the experience of an individual. It is what is sometimes called an 'instantaneous cross-section' of experience, using those terms merely for reference, and without prejudice.

I believe physics to be concerned with the nature of the general relationships between events. Physics is not directly concerned with the actual sensory content of events, nor with the relations *within* an event as distinct from the relations between events. Certain relations within events are associated with physics for symbolic—and especially diagrammatic—purposes, but the 'space' and the 'spatial relations' which occur in physical theory are in no sense the same as those which occur within the sensory content of an event, though the latter are used to symbolize the former, and this has, I think, been the source of considerable misunderstanding. In so far, however, as it may be necessary or convenient for certain purposes to analyse the compresent field which forms an event into very small elementary constituents in spatial relationships, I shall refer to these elements as 'eventicles.'

In any spatial diagram of the field of events it will be appropriate to represent an event, which is the fundamental unit of physics, by a point. This is quite congruous with the ordinary usage of physics, for which those regions of the space-time continuum which are unoccupied by matter are traversed by light rays or the tracks of 'light-pulses.' For current physics an event in such regions is a point of intersection of light rays, each light ray symbolizing in effect an eventicle within the event.

Each event is just what it is, and 'occurs' to one observer only. This is not only fundamental in my theory but is congruous with current physics, for an event, as I have defined it, does not occur unless the light rays are intercepted by the bodily organism of an observer—and that is the end of the light rays.

The symbolism is, however, to be extended to include 'possible' events, which *might* occur to an observer though they do not necessarily do so. In current physics this would be the intersection of light rays at a point which *might* be 'occupied' by an observer, such a point in the space-time of current physics being somewhere in the bodily organism of the observer if the event is observed. I shall call a *possible* event a 'state'—that is, a certain state is the possibility of a certain event. If a state actually occurs it becomes an event, and it is therefore redundant to speak of the 'occurrence' of an event, for occurrence is included in the definition of an event. It is, however, appropriate to speak of the occurrence of a state, for a state may or may not occur. The occurrence of a state is an event. A small element of a state analogous to an eventicle I shall call a 'staticle.'

It is relevant here to refer again for a moment to a matter I have already mentioned—namely, the argument about the existence of unsensed sensa. One of the reasons sometimes given for the alleged necessary assumption of unsensed sensa is that physics requires a continuity of a kind which involves this assumption. But there can now be seen to be additional grounds for regarding the whole argument as pointless. In the first place, the word 'sensum' is just a symbol emerging in experience and not a label corresponding to a definite existent entity. Like other symbols, it is a response to experiential situations and gives rise to responses within experiential situations, so that one might just as well talk of unexperienced experience as of unsensed sensa. In the second place, it is becoming apparent—and will, I hope, be still clearer in the sequel—that the only kind of continuity which the symbolism of physics requires is a continuity, not of existents, but of possibilities.

Having defined the prime material of physics, the next step is to see how quantitative symbolism and the processes of measurement can be applied to this material. Quantitative symbolism can evidently be developed only in connexion with the relations between states—which includes the relation between events and states, an event being a limiting condition of a state—namely, its *occurrence.*

I would first point out that in the end quantitative expression of the relation between states must take the form of pure numbers, for anything else would require that some absolute standards of measurements already existed *a priori*, as it were, within experience, and this is not so. There is a type of pure numbers which springs at once to mind—namely, those which we call 'probabilities'—but the term applied to this, even if it turns out to provide the appropriate symbolism, would need defining in the present context. I mention it now only with the comment that a 'possibility' is always associated with a 'probability'—the probability of its becoming actual—so that if we apply probability here we should evidently have to do so in connexion with states as the possibilities of events. The probability associated with a state relative to certain conditions would in fact be its probability of occurrence as an event.

The next stage is the choice of a fundamental variable, the values of which will express the quantitative relations between states. If we consider those states which are observed—namely, events which, as such, are parts of our experience—the simplest and most general kind of relationship between them is that which can perhaps most appropriately be called 'separation,' it being understood that this term is to be used at this point without any anticipatory and possibly misleading—or even false—spatio-temporal implications. In our development of physics *de novo* we have not yet got to space-time.

I shall not attempt to define 'separation' precisely, and I doubt if it is possible to do so. On the other hand, I do not think it is necessary, for I believe that the term will hold for others, as for myself, the meaning that is required here. It is perhaps enough to say that events, as defined, are numerically distinct from one another, that they are in this sense 'separate,' and that there arises in experience a sense of *degree* in association with this separation. Thus the statement, for example, that separation between my lunch to-day in my house at one o'clock (one event) and my breakfast to-day, also in my house, at nine o'clock (another event) is less than the separation between the latter and my lunch at one o'clock a year ago in a hotel a hundred miles away conveys a quite definite meaning to me.

The separation between states can, then, be symbolized by a variable s, and the value of this variable expresses the degree of separation. But s must be expressed in some unit, and this brings us up against the difficulty of standards of measurements. It is therefore necessary to multiply s by a 'gauge-factor' k, such that the numerical values of s and k vary inversely according to the unit in which s is measured. The product ks is therefore a pure number, thus satisfying the condition already mentioned in connexion with the fundamental relation between states, and it is an absolute invariant expression of the relation between two states in given circumstances, though, as we shall see, its value may—and generally will—change as the circumstances conditioning the two states change. The nature of the units associated with k and s in actual measurement falls for consideration next, but I must mention here that, for reasons which will appear later, it is necessary in general to work in terms of the small separation—'small' in the mathematical sense—between 'adjacent' states—that is, in terms of kds.

Measurement and the Field of States

We come now to the measurement of s and its diagrammatic symbolization. If we suppose the field of s symbolized by a chart or spatial diagram the points in the diagram will symbolize states. On the diagram of the field relative to a given observer, one of the points—O, say—will symbolize an event—namely, the state which is actually occurring to that observer as an event. It might seem natural to symbolize on the diagram the values of s—that is, the 'separations' (for which I shall henceforth use the term 'intervals' which is familiar in current physics)—as *distances*, but this is not in general possible. It *is* possible, however, by a simple transformation and a process of continuation from point to point, to symbolize over each small area of the diagram the differential element *ds* by a spatial distance, and this has advantages in certain connexions, though I shall not go into the matter further at this point. We may ignore the gauge-factor *k* for the present, as it does not come into this part of the discussion.

The diagram we are considering has, in its general form, neither orientation nor 'origin' in the geometrical sense. These are provided naturally only when we consider the diagram of a field relative to a particular observer. In this case the natural origin is the point *O* referred to in the last paragraph. The orientation we shall consider shortly. In fact, the field related to an observer comes first in the development of physics, for its symbolism arises directly from the experience of individual observers, and it is with the fields relative to observers that physics is really concerned. The further development of the symbolism of a general field not related to any particular observer, though convenient in some connexions for the purpose of exposition, is of little practical significance. The data and applications of physics consist in the observation and prediction of events, and these are in the experiences of individuals. The symbolism of states and their relations is a technique for dealing with observations and proceeding to predictions.

Measurement involves comparison with a standard. Both the standard and what is measured involve a relation between two relata—*e.g.*, the linear spatial extension between two points. Hence a process of measurement involves two relations and four relata, two to each of the two relations.

Measurement at once brings in an observer, the measurement being made within the experience of the observer—that is, within events which occur to the latter. Therefore the interval between states or between an event and a state cannot be measured directly, nor immediately derived from direct measurements. As we shall see, however, it is possible for an observer to measure directly the interval between two events which occur to him.

The field of states relative to an observer to whom a certain event is occurring can be conveniently symbolized by a spatial diagram within his experience. The diagram is plotted out by means of co-ordinate axes, with origin *O* at the event occurring to the observer. As I have already mentioned, it can be shown that for this purpose four dimensions or co-ordinate axes are necessarily required, one of which differs in type from the other three. The points in the diagram symbolize states, and four co-ordinate values are associated with each point. For the variables taking these values I shall use the familiar symbols x, y, z, t, and it will be necessary to determine the relation connecting the interval s between two points and that between the co-ordinates of the points. It is not of course possible actually to construct a diagram having more than two, or exhibiting at most three, dimensions; but for most purposes a two- or three-dimensional diagram is general enough, extension to a fourth dimension being by analogy. But I will say more on the matter of dimensions later.

Let *E* be an event occurring to a certain observer, and let *X* be some other state. Then either it is possible or impossible for *X* also to occur to the same observer as an event. Hence, relative to an event *E* and the observer *O* to whom it occurs, all other states fall into one of two groups, according as they can or cannot also occur to *O*. When we come to develop the algebra of the co-ordinates of states relative to *O* and of the intervals between them, and the geometry of the diagram symbolizing this, we should expect to have this dichotomy of states made clearly apparent in the symbolism. It will in fact be shown by real and 'imaginary' (in the algebraic sense) values respectively of the intervals between the event *E* and other states. It is an arbitrary matter on which side we assign the real and on which side the imaginary values, but the usual convention of assigning a real value to the interval when it is possible for the state concerned to occur to the observer *O*, who observes *E*, certainly seems the more appropriate. An interesting and important case is that of the boundary between the two groups of states, and, again to anticipate, we shall see that this boundary is occupied by one event only—namely, the event E itself, whose interval from itself is clearly zero.

A fundamental point to be emphasized here is that the diagram of the field of intervals and states is just a symbolization within the space of experienced events. The common notion of space-time—which is the field of the relations *between* states—as something analogous to the space *within* an occurring state, or event, in the nature of a void in which 'events' are distributed as entities independent of experiencing observers, which the latter 'come across' in their wanderings through the void, is a quite unwarrantable hypostatization and projection. The field of spatial relations within an event is something quite different from the field of the relations between states, though the former may conveniently be made use of in symbolizing the latter. To avoid confusion, however, we may continue to use the term 'space-time' for the field of states and their relations, but with all necessary reservations, and, later, definitions. We shall then have to explore, on the one hand, this field relative to a given observer, and, on the other, the interrelation between the fields of different observers.

Actual measurement in physics is carried out primarily by clocks and scales. A 'scale' is, in general, a concrete linear spatial extension marked with graduations, and it is unnecessary to say more about it at this point. A 'clock' is fundamentally a kind of counter, a counter of repetitive processes or cycles. Thus we may count the beats of a pendulum or metronome, or the revolutions of a pointer on a circular graduated scale. In the latter case a scale is brought in mainly for the purpose of assigning values to fractions of a complete cycle. It is important to remember that, in measuring with clocks, we are not really dealing with something independent of the clocks, but with the comparison of the reading of one clock with that of another, or of the reading of the same clock on different occasions. Though it is commonly said that a clock, to be 'accurate,' must perform its cycles 'at a constant rate,' this is misleading, for 'rate' implies something—which would usually be called 'time'—independent of the clock-readings. But there is no warrant for this—in fact, it involves a vicious endless regress—and when we say a clock is inaccurate what we are really saying is that its readings differ erratically from those of other clocks which, in the same circumstances, show readings agreeing with one another; and this is true even if the 'clock' is provided, for example, by the rotation of the earth on its axis, or by its revolution about the sun. 'Constant,' or 'uniform,' rate—or, indeed, any 'rate'—arises from comparison between clock readings, and has no significance apart from these. The terms are a way of symbolizing certain relations between clock-readings, and if all the clocks, with readings systematically related, which are used in physical measurement were altered in various ways it would make no difference at all from the point of view of physics, *provided that the clock-readings continued to be systematically related in the same way as before.* But this is really an empty supposition, since for physics the clocks *are* nothing but the counter readings, and the physical measurements concerned arise from nothing but these readings and the relations between them.

While actual measurement is concerned only with processes within experienced events, symbolic rules of calculation from the values obtained by measurement lead to the assigning of quantitative values in the field of states, the rules being determined both by the requirement of consistency in the symbolism and by the criterion of the resulting effectiveness in relation to non-symbolic experience, though, as we have seen, these two merge into one another.

In theory the observer might perhaps exercise a fairly free choice as to how he proposes to measure directly the interval between two events, but in practice the choice is narrowed considerably. The measuring instrument must be present in both events, and there must be no serious difficulty or awkwardness in regard to the instrument arising from the transition from one event to the other. Hence the obvious instrument for the purpose is a clock. We may therefore take the measurement of interval—that is, the degree of 'separateness' of two events—as the difference in the readings of a clock which is present in both events, and accompanies the observer from one to the other. We shall see, however, that in general it is possible to measure accurately the interval between two events directly only when the interval is small.

Suppose *E* is a state occurring as an event to an observer *O*, and *X* is another state occurring to *O* as an event on another occasion. The direct measurement of the interval *s* between *E* and *X* will be made by the observer with a clock as described in the last paragraph. But by observations on the readings of a clock and a scale made by *O* within the event *E*—in practice, of course, within *E* and adjacent events—values of the co-ordinates t, x, y, z may be assigned to *X*. The next step will be to determine the relationship between the value of *s* and the co-ordinate values, and the functional symbolism which expresses this relationship gives the metric of the diagram of the field. It is only when the metric is of a certain character that we have conditions in which it is possible accurately to measure directly the interval between two events when this is not small.

This is one stage at which there is a link-up with current physics, and I shall limit myself here to noting those points which are specially relevant to the present discussion and to developing some of these in relation to the latter.

It is found that the relation between the differential element of interval ds and the co-ordinate differentials dt, dx, dy, dz is such that the square of ds is equal to a general quadratic function of the co-ordinate differentials, the coefficients occurring in the functional expression being determined by the metric. The metric field is equivalent to the gravitational field—that is, those relations between events which are commonly said to arise from a gravitational field are symbolized by the metric of the field diagram. The 'gravitational field,' indeed, is itself just a symbolization of the relations between events, and the introduction of, for example, a gravitational 'force' is redundant and unwarranted. The coefficients in the quadratic expression for ds^2 are the gravitational potentials or the metric potentials—the mode of naming is a matter of indifference.

It is always possible to pick one set of mutually orthogonal co-ordinate axes with O as origin such that for a small region of the field diagram in the neighbourhood of the event E which is being observed by the observer—and this is indicated by the point O—the expression for interval reduces to the simple form $ds^2 = c^2dt^2 - dx^2 - dy^2 - dz^2$, where c is a constant. In certain circumstances—namely, those associated with what we should call the 'absence of a gravitational field,' which is equivalent to the metric of a 'flat' diagram (that is, one with a geometry analogous to the Euclidean, and sometimes called 'Galilean')—the expression just mentioned can be extended to larger regions, and becomes $s^2 = c^2t^2 - x^2 - y^2 - z^2$. In practice, this frequently holds to a high degree of approximation over a considerable region, and for brevity and simplicity I will continue to use it for the moment.

As the interval between two states is an absolute invariant, if the circumstances of the observer observing E were different—in particular, if the direction and magnitude of his velocity were different—the value of the interval given in terms of those co-ordinates (say) t', x', y', z', associated with the changed conditions—which give the simple expression for interval—must be the same as before. That is, it is necessary in the nature of the case that $c^2t^2-x^2-y^2-z^2$ and $c^2t'^2-x'^2-y'^2-z'^2$ should be equal, for both are equal to s^2. Thus in all circumstances the observer obtains from his observations the same measurement of the interval between two particular states, and this is so even when neither of the states is actually occurring to him, although his observations and measurements must necessarily still be within the events he is observing. The expression for the interval is then

$$s^2 = c^2(t_2 - t_1)^2 - (x_2 - x_1)^2 - (y_2 - y_1)^2 - (z_2 - z_1)^2,$$

where (t_1, x_1, y_1, z_1) and (t_2, x_2, y_2, z_2) are the co-ordinates of the two states concerned.

Two questions now arise. The first is how, given the circumstances of the observer, his time-axis is determined and his field diagram thus given orientation. Suppose the observer's track in the diagram to be marked by a line joining the points symbolizing the states which occur to him as events. Then the tangent to that line at any point symbolizes his time-axis on the occasion of the occurrence of the state symbolized by the point. When any event is being observed the time-axis is thus definitely fixed, the spatial continuum of the diagram being the section to which the time-axis is normal. The orientation of the space axes within this section is arbitrary, and may be chosen for convenience for the particular purpose in hand. For this reason we can again simplify further for the moment and confine attention to one space axis only, so that the expression for the interval becomes $s^2 = c^2t^2 - x^2$. Unless otherwise stated, any results so obtained can be directly extended by analogy to three spatial dimensions. The direction of the time-axis will of course alter with changes in the direction of the observer's track as his circumstances vary.

The second question is why, in the expression for the interval, the values of the time and space co-ordinates are combined by subtraction rather than by summation. I think this is most simply explained as follows. Suppose I am observing an event E at my house in London. Consider a state X which *may* occur to me as an event also in my house at 3 P.M. next day and another state Z which *may* occur to me as an event at 3 P.M. next day in Edinburgh, the time being relative to my axes at the event E. Relative to these axes the space co-ordinates of X will be zero, but the space co-ordinates of Z will not be zero; therefore the interval between E and Z will be less than the interval between E and X. At first sight this seems odd; but if I am to observe Z rather than X—and clearly I cannot observe both—I must set myself in motion in a certain direction with a certain velocity so that I arrive in Edinburgh to observe Z at 3 P.M. next day relative to my time-axis at E. Hence, whereas if I am to observe X I remain where I am and, as it were, just await the occurrence of X, if I am to observe Z I must as it were advance in space to meet it, and therefore the interval between E and Z will be less than that between E and X.

The lower limit comes in the case when $c^2t^2 = x^2$, and therefore the interval is zero, so that there is no transition from one event to another. The two events coincide—that is, they are in fact one identical event. This is an absolute limit, for it is the square of the interval which is involved, and this has no real (negative) value less than zero. 'Imaginary' values of the interval have a different significance, which will be considered later.

The Velocity of Light

As the time and space contributions to the interval value are combined by difference, when $c^2t^2 = x^2$ they cancel, so that a temporal value ct is then equivalent to a spatial value x, and this gives the unit of spatial measurement in terms of the unit of temporal measurement. Observation shows that 300,000 kilometres is very nearly equivalent to one second. This is not a fact about an objective and external 'Nature,' but about our units—that is, about our symbolism.

Since when the interval is zero $x/t = c = 300,000$ km/sec, and since x/t is an expression of a kind commonly associated with velocity, it has become customary to regard 300,000 km/sec as a velocity—namely, the 'velocity of light.' The imagery associated with this is that of an objective space which is crossed in time by pulses of an entity called 'light.' But although this imagery is often convenient and helpful, it is nothing but symbolism, and there is no warrant for the hypostatization of entities termed 'space,' 'time,' and 'light.' 300,000 km/sec is just a ratio of two units, and not a velocity in the sense in which we speak of the 'velocity' of moving bodies in the space *within* events. It is from the latter that the term 'velocity' originally derives its *meaning*, and it is from observations and measurements of moving bodies within events that the term is fundamentally *defined* for physics. Experiments for determining the so-called 'velocity of light' are quite different in character from those for determining the velocities of a material body. What the former are really determining is the equivalence ratio of our units of space and time.

For convenience I will take the value of c to be unity, as is now commonly done, this being evidently just an adjustment of units. If then $t = x$ so that s is zero, we are concerned only with one identical state, but with this state there is associated a whole set of pairs of co-ordinates t, x—namely, those for which $t = x$. But the state is one and the same—namely, the event which is being observed—and, except as a convenient symbolism, we are not justified in projecting this out into an objective space-time as an entity which moves from one point to another in this space-time. The state 'at' (1 sec., 300,000 km.) and the state (event) at (0 0,) are precisely one and the same; these are simply alternative ways of symbolizing the same state. A state just *is*; physical space and time do not enter into it as such, they only come into the relations between *different* states.

I have been speaking of 'states' and 'events,' but strictly in this context I should speak of 'staticles' and 'eventicles.' With one spatial dimension, however, there is no difference, but in extending to two or three dimensions of space we should have to substitute 'staticles' and 'eventicles' for 'states' and 'events' in the preceding paragraphs. The reason for this can perhaps be most clearly seen from the consideration that in terms of physics a staticle or eventicle is associated with one 'ray' of light, whereas a state or event is associated with the intersection of a number of rays.

Each eventicle within an event is associated with a certain 'direction,' which can be defined, relative to the observer, within the event, and with which an angular measurement relative to a specified direction can be assigned by measurement in principle within the event—though in practice the process of measurement must evidently involve adjacent events as well.

Interesting results follow from the foregoing, but two are of particular importance. The first is that the time 'direction' is distinguished absolutely for the observer, for it is determined by the order of the events he observes, and this determining characteristic is quite different from anything determining the spatial directions, though in the field diagram both time and space axes are symbolized in the same kind of way.

The second important result is that since $t^2 - x^2 = s^2$ the ratio x/t is evidently an absolute maximum when s is zero. Hence the fact that in the present context the greatest possible 'velocity' for physics is 300,000 km/sec is not something strangely inherent in the nature of things but a simple consequence of the mathematical fact that the least possible value of a real positive quantity is zero. Another direct consequence is that all observers—or the same observer in all circumstances—will obtain from their observations and measurements the same value for the 'velocity of light *in vacuo*.'

The effect of the interposition of matter in which, as we say, the light 'travels' is to alter the ratio of spatial and temporal units resulting in zero interval or separation of an event from itself, and so to alter the 'velocity of light.'

The point at issue here is an interesting one, and I should like to pursue it a little further. To avoid the complications of different directions in space and the intersection of light rays coming from these different directions, I will consider the case of a single spatial dimension. In such circumstances each event will consist for the observer of a point-flash of light. In the two-dimensional space-time diagram each point will then represent a different event, or point-flash, *except along a light-line where every point represents the same point-flash or event*, whose interval or separation from itself is necessarily zero. Hence the *fact* is that the position of the light-line relative to the space and time axes determines, not the velocity of something across a void, but the ratio of space and time units which will satisfy the necessary condition that the interval of an event from itself must be zero. From this follows all the at first sight surprising characteristics of the 'velocity of light.'

A comparison is sometimes drawn between sound and light, and it is said that, as the velocity of sound has not such characteristics of the velocity of light as I have been discussing, these characteristics are unique and arise from something peculiar to the nature of light. But this apparent difference between light and sound is merely a consequence of the fact that in observation and measurement of auditory phenomena we mix up auditory and visual sensa. If we were sightless and all observation and measurement in the field of sound were limited to auditory sensa the 'velocity of sound' would play a part in physics precisely analogous to that played by the 'velocity of light' in the physics of the visual field. In particular, the 'velocity of sound' would be the maximum possible 'velocity' in the sense already explained, and these conclusions are not affected by the fact that 'light' and 'sound' have different kinds of relation to 'matter.' In a physics limited to the auditory field, the analogue of spatial distance would differ in some characteristic way from spatial distance, as a measured quantity, in the visual field; but it is perhaps worth pointing out that this would not be so in the case of time, for the measurement of time does not depend on processes peculiarly linked to one sense or another; its essential characteristic is what is in effect just a *counting* of repetitive processes, and such processes occur in both the visual and the auditory fields.

This suggestion as to the status of the velocity of sound for sightless beings may seem odd, and apparent difficulties may occur to the mind in connexion, for example, with the 'medium' of the sound and its movements, and with velocities of the observer which, in a world of sighted beings, might exceed the velocity of sound. But these apparent difficulties arise, as I have said, from the confusing of auditory and visual sensa.

The analogue of space would differ profoundly from the space of our visual experience, and the system of symbols, units, and methods of measurement would, for the most part, be on a quite different basis. The system would, in fact, be so constructed—necessarily, as I think—that the velocity of sound would play the same part as the velocity of light does with us. The light-flash would be replaced by the sound-pulse as an event or fundamental constituent of events, and the necessary zero interval of an event from itself would be related to the 'velocity of sound' instead of to the 'velocity of light.'

Absolute Past and Future

Relative to a state which occurs as an event E to an observer, all other states fall into one of two groups, according as it is possible or impossible for them also to occur as events to that observer. In the field diagram the regions in which these groups of states are located are separated from one another by the straight lines $t^2 - x^2 = 0$, which bisect the angles between the time and space axes. In two spatial dimensions the boundary would be the cone $t^2 - x^2 - y^2 = 0$, and in three spatial dimensions the hyper-cone $t^2 - x^2 - y^2 - z^2 = 0$, but I will continue to work in terms of one spatial dimension, as the relevant results can in general be extended quite plainly to two and three dimensions.

When t is greater than x, s is 'real,' and the corresponding state X (say) could occur to the observer of E. If t is positive X is said to be in the 'absolute future' relative to E. If t is negative X is in the 'absolute past' relative to E, and in both cases its interval from E is said to be 'time-like,' for this interval could be measured by a clock with an observer who perceived both E and X.

When t is less than x, s is 'imaginary,' and the corresponding state Y (say) could not occur to the observer of E. Y is then said to be 'elsewhere' relative to E, and its interval from E is said to be 'space-like.'

When $t = x$ and s is accordingly zero all the states concerned are identical with the event E, as I have already pointed out. A special case arises when t and x are infinite, which I will refer to shortly.

The equation $t^2 - x^2 = s^2$ symbolizes a family of rectangular hyperbolas in the field-diagram for different values of s. It is important to realize that in this context the straight lines symbolized by $t^2 - x^2 = 0$ are a limiting case of the rectangular hyperbolas and not a limiting case of equations of the form $vt \pm x = 0$ when $v = 1$. It is when the straight lines $t^2 - x^2 = 0$ are (wrongly) regarded as a limiting case of $vt \pm x = 0$ that the notion arises of light as an entity traversing space in time with a certain velocity, a notion which I have shown to be invalid.

Each point on the hyperbola $t^2 - x^2 = s^2$ symbolizes a state at an interval s from E. The special case arises when t and x are infinite—that is, when we are concerned with points at infinity on the hyperbolas. Such points symbolize states which pass from the absolute future to the absolute past of E 'through infinity.' They do not occur as events to the observer of E.

I think the points I have been discussing are made clearer by a simple transformation to which I have already referred. Let θ be an angular parameter such that $t = s \sec \theta$, $x = s \tan \theta$, $\tau = s \cos \theta$, $\xi = s \sin \theta$ and, accordingly, $t^2 - x^2 = s^2 = \tau^2 + \xi^2$. θ varies from 0 to $\frac{\pi}{2}$, and the equations just given transform the rectangular hyperbolas into their auxiliary circles. I will call the field diagram of t, x, s the 't-diagram,' and the field diagram of τ, ξ, s the 'τ-diagram.'

Then to every point in the absolute future and absolute past of the t-diagram there corresponds one point, and one point only, in the τ-diagram, and this exhausts the whole of the real τ-diagram, so that each point of the latter symbolizes a state in the absolute future (t and τ positive) or the absolute past (t and τ negative) of E. It will be seen that in the transformed diagram I take τ to be the variable corresponding to t in the original diagram.

The 'elsewhere' regions of the t-diagram transform into the imaginary part of the τ-diagram, for s, τ, and ξ are all then imaginary. But the most important point is that in the τ-diagram the intervals s of states *from E* are symbolized by *distances* from the 'origin' O of the diagram (where τ and ξ equal zero) which symbolizes the event E, and corresponds to the origin O (t and x equal zero) of the t-diagram—though it should be noted that intervals between other states are *not* symbolized by distances between the points symbolizing those states.

The lines $t^2 - x^2 = 0$ transform into the single point O of the τ-diagram, which accordingly appropriately symbolizes the fact that the states symbolized by $t^2 - x^2 = 0$ in the t-diagram are all identical with the event E. Moreover, the points at infinity on the hyperbola $t^2 - x^2 = s^2$ in the t-diagram are symbolized by definite points on the ξ-axis of the t-diagram —namely, $\xi = \pm s$, for in this case $\theta = \frac{\pi}{2}$, τ is zero, and $s^2 = \xi^2$.

I find the transformation I have described a useful means of clarifying many points which arise in the discussion of space-time and events, and it could be developed a good deal further, but this is not the place for a detailed mathematical exposition. It may be stated, however, that if we wish to generalize the relation of distances in the τ-diagram to intervals, and not limit it to intervals from the observed event E, it is necessary to apply the transformation to the differentials of the variables, so that $dt = ds \sec \theta$, $dx = ds \tan \theta$, $d\tau = ds \cos \theta$, $d\xi = ds \sin \theta$, and then to proceed by a process of continuation from point to point of both diagrams. There will then be a one-one correlation between points in the t-diagram and points in the τ-diagram, and small distances in the latter will be equal to the intervals ds between the states symbolized by the points terminating these distances. The interval between *any* two states will be equal to the integral of ds taken along a route in the τ-diagram joining the points symbolizing these states, and passing through the points correlated with those in the t-diagram lying on the line joining the two points which symbolize the two states in that diagram.

The transformation of differentials just described is equally applicable when the conditions of the space-time diagram in the neighbourhood of the observed event E are not 'flat' or 'Galilean.' In this case—which is the general one—it is necessary, as has already been mentioned, to work in terms of differentials in the original field t-diagram, ds^2 being equated to the general quadratic function of the co-ordinate differentials. It is also necessary to specify the route along which the integral of ds is taken, which is in fact generally one for which the integral has a 'stationary' value.

We may now return for a moment to a consideration of the gauge-factor k. Just as the coefficients of the co-ordinate differentials in the quadratic expression for ds^2 symbolize the character of the gravitational field, so the variations in k—which may include variations of gauge in different directions at the same point in the field-diagram—symbolize the character of the 'electro-magnetic' field. Hence the nature of the metric of the field-diagram and the variations of k in that diagram together form a symbolization equivalent to the ordinary symbolization in physical theory by gravitational and electromagnetic fields.

The correlation of the fields of different observers, or—what comes to the same thing—the fields of the same observer in different circumstances, is of course effected through the well-known methods of the tensor calculus. But I am not further concerned with this here, for it proceeds from the point at which, as I have indicated, the epistemological consideration of fundamental physics links up with the current theory of mathematical physics.

So far I have been dealing with that branch of physics which is commonly known as 'field theory.' I will now leave this for the moment and pass on to that other equally important branch of physics which deals with what we call 'matter.' It will afterwards be necessary to discuss the unification of the two branches from the point of view of the theory of knowledge which I have developed.

Matter

The *meaning* of the word 'matter' evidently emerges in experience from the field of more than one of the senses; but it is predominantly associated with the senses of touch and sight. For physics, however, it is not the meaning of the term which is primarily relevant but rather the *definition* of the phrase 'occupied by matter' as applied to a point in the field diagram, or, equivalently, the definition of the phrase 'located at a point in the field diagram' as applied to matter. For certain purposes a symbolism may be used in which every point in a certain region of the field is said to be occupied by matter—a so-called 'continuous distribution of matter'—and the whole region is then said to be occupied. For other purposes distinct and separate points (which may be very numerous, as contrasted with a continuum of points in the region) may be said to be occupied.

I have come to the conclusion that for physics, as distinct from physiology and psychology, the only significant definition of the phrase 'occupied by matter' as applied to a point in the field diagram is a negative one—namely, that no observer can be supposed to be located at such a point, or, equivalently and perhaps more directly, that there is no event (in my usage of 'event') located at the point. It is this impossibility of observer- or event-location which distinguishes points in the field occupied by matter from points not so occupied. On the other hand, from the point of view of physiology and psychology it might be said that events are located *only* in regions occupied by matter—namely, the bodies of observers; but this raises all kinds of complex issues, concerned, among other things, with the distinction between the relation of the observer to his own body and his relation to the bodies of other observers as material bodies in the physical sense. Fortunately, however, these issues are irrelevant to phsyics, which is concerned with events and states as they are rather than with observers as such, the process of observation and its results being integral components of events.

In any case, the definition of the location of matter at points, and the difficulties which arise in connexion with this, is not of much importance in physics, for this location is in fact symbolized by characteristics, expressed as mathematical variables, of the regions of the field unoccupied by matter. So far as physics is concerned, all observation and measurement occurs within events in such regions. This is so even when for some purposes we attach certain numerical values—including the values of the space-time co-ordinates themselves—to the points occupied by matter, for these values are only assigned through observation of events at other and unoccupied points. Hence points occupied by matter are singularities in the field diagram. In themselves they are characterless and indistinguishable, and they come into the symbolism of physics only through their relationships with the characteristics of the field. The same is true, as we shall see, of the ultimate material particles of physics, which are also characterless in themselves and indistinguishable, and come in only as 'dummy' relata in the relationships within the field. All the characteristics of the field are symbolized by scalar, vector, and tensor quantities which can be expressed in terms of the coefficients—and their derivatives—which symbolize the metrical (gravitational) and gauge (electro-magnetic) characteristics of the field. Hence matter enters into the symbolism of fundamental physics only through the metric and gauge of the field diagram, which is assigned by observation and measurement within events.

Evidently the *meaning* of the term 'particle' emerges originally in experiential situations involving what would be called minute, but *observable*, portions of matter. Physics has found it convenient and effective to extend the symbolism into the region of the unobservable. 'Particle' then becomes *defined* as a kind of dummy, having certain associated characteristics and relations—all derived from observables—with which, for any particle, a particular point location is specially connected, the exact manner of connexion depending on the type of symbolism which is being employed for the purpose in hand.

In using the particle symbolism physics has again found it convenient and effective to regard macroscopic, or 'molar,' portions of matter as made up of very large numbers of particles. The latter are treated as a statistical assemblage.

An important point then arises. Observations of molar masses are translated into the symbolism of particle assemblage, but the correlation between the two is not one-one but one-many. For well-known statistical reasons, while for any given values of the variables associated with the particles there will be only one set of molar measurements, for a given set of molar measurements there will be an indefinitely large number of possible values of the variables associated with single particles. Hence if we interpret certain molar observations and measurements, not in terms of the particle assemblage as a whole, but in terms of single particles, we should expect to find an indeterminacy of some kind in the values we are able to assign to the variables associated with the single particles.

The point is illustrated by the symbolism of the kinetic theory of gases. According to this theory a quantity of a gas is assumed to be made up of a very large number of particles ('molecules') located in various positions in the region occupied by the gas and moving with various velocities in all directions, at the same time undergoing frequent collisions, both among themselves and with the inner surface of any vessel which may 'contain' the gas. But in relating observations to this symbol system we work with statistical quantities such as the mean location, mean 'free path' (*i.e.*, length of path between collisions), and mean square velocity of the molecules. Now if at a certain instant the position and the magnitude and direction of the velocity of each molecule were given we could theoretically calculate the results of molar observation and measurement on the gas. On the other hand, if we were to start from the actual observations we could not assign an exact position and velocity to any single molecule; we could assign the values only within a certain range of indeterminacy. But from the observations we could assign definite values to the means of the variables concerned.

In physics we are rarely if ever concerned with the circumstances of single molecules; but as a result of the direction in which modern physical theory has developed we are frequently concerned with the circumstances of individual protons and electrons. Here it is perhaps worth referring again for a moment to the fact that the 'particles' of physics are in themselves characterless and indistinguishable. This may be fairly evident in the case of molecules; it is not perhaps so clear that not merely two electrons (say) but a proton and an electron or a neutron or a positron, or any other of the particles which now occur in physical theory, are characterless and indistinguishable in themselves. Nevertheless, this is so, for all that we observe is events in the field, and when we estimate such a quantity, for example, as what is called the 'mass-ratio' of the proton and the electron we are not saying something about real entities labeled with these names but something about the interrelations of certain molar measurements.

It is found that the results of translating physical measurements into the particle symbolism are largely co-ordinated through an expression of the form $pq - qp = \frac{h}{2\pi\iota}$, known as 'Heisenberg's equation.' In this equation ι is, as usual, the square root of -1, its presence being due to the fact that in physics it is employed to produce homogeneity of the space and time variables in the symbolic expressions in which these variables occur. The other symbols in Heisenberg's equation require some discussion.

Planck's Constant

The quantity h in the equation is the measure of what is known as the 'quantum of action.' It has been found that the symbolism of physics and the measured quantities involved in it require us to suppose for consistency that the absorption and emission of radiant energy by particles takes place always in amounts which are integral multiples of $h\nu$, where ν is the frequency of the radiation concerned. Since action is the product of energy and time, and $h\nu$ is an amount of energy, h must be an amount of action. It is known as 'Planck's constant,' after the investigator from whose researches it resulted. Its ubiquity in microscopic physics resembles the ubiquity of c, the 'velocity of light,' in molar physics—indeed, c crops up in all fields of physics. Just as the symbolism requires that c should be the maximum field velocity, in the sense which has been explained, so one may suspect that the fact that $h\nu$ is the minimum amount of energy associated with radiation of frequency ν is a necessary consequence of the relevant symbolism. Since action involves time as a multiplier, the action associated with radiation will involve the period—and therefore the frequency—of the radiation. Furthermore, as the wave-velocity of radiation of a given wave-length is proportional to the frequency, it can, I believe, be shown that the value $h\nu$ as the *minimum* amount of energy associated with radiation is a necessary consequence of the fact that c, the *maximum* field velocity, is the wave-velocity of radiation. However that may be, the consistency and effectiveness of the symbolism requires $h\nu$ to be the minimum radiant energy emitted or absorbed by particles.

'Co-ordinates' and 'Momenta'

The symbols p and q in Heisenberg's equation are not numerical or algebraic quantities in the ordinary sense, but *operators*—that is, they indicate certain defined operations to be performed on other symbols associated with them. In molar physics they reduce to ordinary algebraic quantities of the kind known in dynamics as 'generalized' momenta and co-ordinates, the momentum p being said to be 'conjugate' with the associated co-ordinate q. In the general case the momentum p becomes the operator $\frac{\partial}{\partial q}$, or, more strictly, $\iota\frac{\partial}{\partial q}$.

The solution of Heisenberg's equation $pq - qp = \frac{h}{2\pi\iota}$, or $\frac{\partial}{\partial q}q - q\frac{\partial}{\partial q} = \frac{h}{2\pi\iota}$, involves the discovery of some function ψ of the space and time co-ordinates of particles, such that the result of operating on this function with the operator symbolized by the right-hand side of the equation is equivalent to multiplying the function by $\frac{h}{2\pi\iota}$.

The 'solution' ψ of the equation, which is easily found, turns out to be an expression symbolizing a wave-like distribution in space, the waves travelling in time. Hence we reach the result that with every particle there is associated a function ψ symbolizing a wave-like distribution of something in space and time. This 'something' can be interpreted as the 'probability' of the location and the momentum of the particle, and must now be explained.

The Uncertainty Principle

Let us suppose that we carry out the process of observation, measurement, and calculation which we call 'determining the position of a certain particle at some future time t.' When time t arrives suppose we make further observations to check our prediction. Then it will be found that we cannot in this way predict accurately the future position of a particle, as located at some definite point in space, but that if the process be repeated a great number of times in similar circumstances we can predict from the original fixed data of observation and measurement the relative frequencies of the positions in space occupied by the particle which will be yielded by the later set of observations—those at time t. These relative frequencies may be called the 'probabilities' of the various possible positions of the particle at time t, given the data of the original observations. The values of ψ, which is a function of the space-time co-ordinates of the particle, give the distribution of the probabilities of position over the space field at time t. In a similar way, from observations at a certain time we can determine the probabilities of the various values of the momentum of the particle at some future time.

If, before time t arrives, another set of observations were made the calculated probabilities for time t would of course be different. Probability is relative to knowledge—that is, it depends in this case on the observations from which we start and on the time which elapses before the confirmatory observations are made. Hence the wave distribution of ψ changes with every fresh set of observations.

It is clear, therefore, that, although we find it simpler and more convenient to symbolize in terms of 'particles' and 'waves,' what we are really determining is the probability relations between the results of observations and measurements made at different times. It is also clear that there is no basic incompatibility between the 'particle' and the 'wave' symbolisms. A particle is a convenient but characterless symbolic dummy whose 'position' and 'momentum' is defined completely in terms of processes of measurement in the field of events. The expression of the relations among these measurements is found to involve probabilities, as relative frequencies, distributed in accordance with equations of wave type. No incompatibility is involved here; it arises only if we hypostatize 'particles' and 'waves' as real entities instead of merely convenient symbols.

The description of the processes of observation and measurement which defines what is called the determination of the position and the momentum of a particle must, of course, include an account of the apparatus employed. By modifying this apparatus in certain ways it is possible to reduce the spread of the position-probability distribution, and so concentrate the probability about regions where the probability will be higher than that yielded by observations with the unmodified apparatus. We call this making a more precise determination of the position of the particle. But the methods of observations directed to determining position and momentum respectively are interlocked in such a way that apparatus modifications which concentrate the position probabilities actually spread the momentum probabilities to a greater extent than before. Hence greater 'precision' in determining position is only secured at the expense of less precision in determining momentum. It turns out that these opposite effects are related in a definite way, such that the product of the two 'errors,' as expressed by the spreads of the probability distributions, when given optimum conditions of measurement, has a constant value, and can never fall below this value as a minimum, however we adjust our methods of observation and the apparatus used for this purpose. The value of the error product is equal to Planck's constant h, and this indeterminacy in the estimation of position and momentum is known as Heisenberg's 'Uncertainty Principle.'

It is facts of this kind which have given rise to the notion of 'observational interference' to which I have already referred. But, as I then pointed out, there is really no question of the existence of an objective reality, independent of experience, which our observations interfere with in such a way that we are unable to obtain accurate information about it. All that we are doing is determining the relationships among certain processes of observation and measurement in experiential situations, of which the processes themselves, including the apparatus used, are integral parts. The processes and the symbolism associated with them are responses to experiential situations, and result in responses which are effective in other experiential situations.

Starting from Heisenberg's equation, I have been considering only the simplest developments of quantum theory and wave mechanics, but this is enough for the purposes of epistemology. At this point there is another link-up with current physics, in which the symbolism of operators and wave equations has now been developed to a very high degree, especially in connexion with what are called 'E-symbols' or operators and 'E-numbers.' The E-symbols determine a symbolic frame of reference, while E-numbers symbolize characteristics of physical systems—but it is unnecessary to pursue this topic further here.

Light Waves and Photons

In the case of light we have a state of affairs closely analogous to that which exists in the case of matter. Particle and wave symbolisms exist side by side, though light particles, or 'photons,' differ from material particles in having no rest-mass. The photon always has a velocity—namely, *c* the 'velocity of light'—which is constant for all circumstances of the observer, and therefore for all frames of reference.

In relation to light, as to matter, neither the wave nor the particle symbolism is alone adequate for dealing with all the phenomena concerned; the two must be combined. If the photon were held to be a real, self-existent corpuscular entity, and light waves were believed, as originally, to be waves in some real, self-existent substance, the 'æther,' then indeed it is difficult to see how wave and particle theories could be made compatible. But such hypostatization is unwarranted and unnecessary. Photons are convenient dummies with which characteristics of the field, as defined in terms of observation, are associated. This is just a convenient and effective symbolism. The waves in space-time provide a symbolism for the distribution of the position-probabilities of photons. These probability waves are, in effect if not in terminology, identical with the 'light waves' of ordinary physics.

The matter may be looked at in either of two ways. We may regard the wave characteristics in a given region of the spatio-temporal field as providing a measure of the probability of a photon's being located within that region, the measure being derived from relative frequencies as described in the case of a material particle. Alternatively, we may regard the wave characteristics of various regions as providing a measure of the relative numbers of photons, or relative photon-frequencies, in the various regions. These two ways of looking at the matter amount to the same thing, but in some respects the second is more convenient. I may illustrate by an example taken from interference phenomena.

By methods precisely described in text-books on physics it is possible to produce, from a source of light on a screen for example, what are known as 'interference bands'—that is, alternating bands of light and darkness. There is a continuous gradation of intensity of illumination from maxima at the centres of the light bands to minima (zero illumination) at the centres of the dark bands. The degree of intensity in any narrow strip on the screen may be regarded as proportional to the number of photons falling on the strip. This number is determined by the characteristics in the strip of the wave distributions of the position-probabilities of the photons. At some points the various probability waves cancel out so as to give a resultant zero probability that a photon will strike there. These are the points of zero illumination. At intermediate points the waves combine to give a resultant non-zero probability, and the intensity of illumination varies with this probability. In this way the wave and the particle symbolisms are coherently and consistently combined in such a manner as to provide together a symbolism adequate to cover all the phenomena, it being remembered that we are in reality thus symbolizing relationships among observations and measurements, in particular those which constitute what we call the determination of light-intensity.

Velocity Effects

After this attempt to exhibit the consistency of the wave and the particle symbolisms and the relations between molar and microscopic physics, I will, before considering further the link between the two latter, return for a moment to molar physics in order to discuss the nature of the results of observations on bodies moving at various velocities, particularly at high velocities approaching c, the speed of light. These effects are broadly of two related kinds—namely, the so-called Fitzgerald-Lorentz contraction and the variation of mass.

It can easily be shown that, as a consequence of the necessary condition that the measurement of the interval between two given states or events should be the same for all observers whatever their circumstances of motion, the measurement of a linear dimension of a body derived from observations made by an observer relative to whom the body is moving with velocity v (the linear dimension measured being in the direction of the motion relative to the observer) is less than the measurement of the same linear dimension derived from observations made by an observer relative to whom the body is at rest. This phenomenon is known as the 'Fitzgerald-Lorentz' contraction, the measurement made by the first observer being $\frac{1}{\beta}$ of that made by the second observer, where $\beta = \left(1 - \frac{v^2}{c^2}\right)^{-\frac{1}{2}}$. There is a similar difference in the time-measurements made by two observers moving relatively to one another.

Another necessary consequence of the 'fixed interval' condition is that the measurement of the mass of the body made by the first observer will be β times that made by the second observer—that is, the measured mass increases with the velocity relative to the observer making the measurement.

It will be seen from the value of β that for the observer relative to whom the body is moving the linear dimension of the body in the direction of the relative motion becomes zero when the body moves with the velocity of light, its mass then becoming infinite.

These odd results arise from the way in which the symbolism has been developed, and are simply an indication of the fact that, for physics as embodied in that symbolism, it is impossible for a material body to move with the velocity of light.

I think this can best be seen by considering an observer in a space-time field with only one spatial dimension. For such an observer physical experience will consist in a series of point-events, or eventicles. All motion will be in the one spatial dimension. Now a velocity c in that dimension means that the observer's physical experience reduces to a single unchanging event. This follows from the results of the previous discussion of the symbolism in terms of 'light' and 'light-velocity.' In such circumstances there is for the observer no such thing as physical existence, with its *processes* of observation and measurement. Metaphorically the observer is 'travelling with' the solitary event which constitutes his 'experience' and he observes no other events. Experience thus loses its essential character.

The Relation between Molar and Microscopic Physics

My broad view of the general nature of the relation between molar and microscopic physics will no doubt have become apparent in the course of the preceding discussions. The results of the processes of observation and measurement involved in molar physics are symbolized by a spatial diagram. The space in which this diagram occurs is 'space' in its original meaning as emerging *within* experienced events. It must be clearly distinguished from what it itself symbolizes—namely, a so-called 'spatio-temporal field,' which is the field of the relation between states, events being states which occur to an observer. The term 'spatio-temporal' is here used metaphorically because of the nature of its diagrammatic symbolization, but the relations which, in the symbolism of physics, obtain among states and events are quite different in kind from those valid within events. With the diagrammatic symbolism of the 'spatio-temporal' field there is of course also associated a symbolism of an algebraic character.

Now, when observation proceeds beyond a certain stage it is found necessary, in order to keep the symbolism consistent and effective, to regard certain points of the field as singularities. Quantitative characteristics numerically symbolized are associated with these points, which are said to be 'occupied by matter,' and the characteristics of the field in regions not so occupied are related to the quantities associated with the singularities. A fundamental point of physical investigation is concerned with the positions and motions of the singularities within the spatial dimensions of the spatio-temporal field diagram.

It is found that the results of the processes of observation and measurement which define the determination of these positions and motions can be harmonized symbolically only by expressions which relate a given set of relevant observational data to wave-like distributions of the results of subsequent observations. In other words, a symbol system which attempts to assign precise positions and dynamical characteristics to the field singularities does not work; the symbolism must be in terms of related wave-like distributions of both positional and dynamical characteristics which symbolize probability relations of a frequency type among the results of observations.

The symbolism of microscopic physics is concerned with the singularities. In circumstances involving large aggregates of the latter, molar physics comes into play, and it is found that in such cases the microscopic symbolism reduces to the molar symbolism through the operation of its own rules; indeed, if this were not so there would evidently remain an inconsistency to be resolved. As an illustration of this consider the Heisenberg equation of microscopic physics, $pq - qp = \frac{h}{2\pi\iota}$. In molar physics the quantities on the left-hand side of the equation become ordinary 'co-ordinates' and 'momenta' and are so large compared with the quantity on the right-hand side that the equation becomes in effect—that is, within the limits of possible observational accuracy—$pq - qp = 0$, which is of course consistent with the symbolism of molar physics as expressed in ordinary algebraic form.

It does not follow that microscopic physics is more 'fundamental' than molar physics. Rather the contrary, in fact, for not only is the molar psychologically and chronologically prior to the microscopic in the development of physical theory in human experience but all observation and action is clearly in the molar realm, and it is by its adequacy in relation to observation and action that physical symbolism is judged, whether directly as in molar symbolism or indirectly as in microscopic symbolism. It is only the attempt to hypostatize symbols which lends any colour to the view that fundamental physics lies ultimately in the realm of the microscopic.

The foregoing deals with the general nature of the relationship between the molar and the microscopic; the detailed harmonizing of the two symbolisms into one consistent system is a matter for physics, not epistemology, and depends mainly on the relation of standards of measurement. In ordinary physics it is customary to work with three fundamental units—namely those of mass, length, and time. But these units are not independent; for example, those of length and time are related in the manner described in connexion with the velocity of light. In dealing with the physical universe as a whole we could dispense altogether with such units and work with pure numbers, but in dealing with a limited part of the universe one fundamental unit must be retained to relate this part to the rest of the universe. If we choose length for this purpose the unit in molar physics will be R, the radius of curvature of space. In microscopic physics the principle of uncertainty is involved, for since all measurement requires an actual *physical*—and not merely geometrical—standard the resulting scale is characterized by a degree of uncertainty. The standard deviation σ of this scale uncertainty provides the unit. The two units R and σ are related through the number of particles in the universe, and, as I have previously pointed out, this number is inherent in the symbolism of fundamental physics and is not a fact about an 'objective physical universe.'[1]

Conclusion

I suggested at the beginning of this chapter that perhaps the clearest illustration of the nature of symbolism was furnished by physics. The real can be prehended only, as it were, by actually *living* it—that is, in experience. It cannot be conveyed in symbols by 'description,' which involves the notion—invalid in this context—of 'correspondence.' Of course, symbols are themselves part of reality; but they are responses, and physics consists not in the prehension of the non-symbolic real but in the development within experience of a certain symbol system, and in the experiential processes of observation and measurement which yield an integral part of this symbolism as a means of dealing with the non-symbolic in some of its most important aspects. I believe that the symbolism of fundamental physics can, in the last analysis, be exhibited as the probability relations of events, 'probability' being given a frequency definition. The spatio-temporal field is the field of these probability relations, the gravitational field defining the nature of the distribution of the probabilities, and the electro-magnetic field defining the 'spread' of the distribution. But to demonstrate this would require a detailed mathematical discussion which would be out of place here. In any case, it may be helpful to bear in mind the characteristics of physical symbolism which I have tried to elucidate when considering symbolism in other fields.

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[1] For an account of the matters here referred to see Eddington, *Fundamental Theory*, Chapter I.

CHAPTER IV

Psychology

THE field of study of the psychologist necessarily lies entirely within his own experience, and covers certain aspects of the situations which occur therein. This field can be divided conveniently into two related parts. In one the psychologist is observing his own 'mind,' a process we call 'introspection'; in the other he is observing the overt 'behaviour of bodily organisms, including his own and those of other people.

In introspection the psychologist observes the sensations, images, feelings, volitions, and so on which occur in his experience, together with the relations and interrelations of these, and a symbolism has been evolved for dealing with this part of the field which we shall have to consider. Some of the field of observation consists in the results of introspection reported in speech or writing by other people, including other psychologists, all this being observed by our particular psychologist within his own experience.

In considering sensation the psychologist is in general concerned with characteristics and relations of sensa and sensory events different in type from those with which the physicist deals. For example, psychology investigates modifications of sensa due to bodily factors, and the relations of sensa to images and feelings. It also investigates different kinds of sensa and their relationships. Physics, on the other hand, investigates those relations between sensa or sensory events, usually of one kind—*e.g.*, visual—at a time, which are, as we say, independent of the 'agency' of the observer, except in so far as the actual process of observation is involved in this. It assumes in general fixed standard conditions of the observer, as regards his body and as regards such things as feeling and volition, of a kind which will not in themselves give rise to the obtaining of different results by different observers in similar (physical) experiential situations.

Coming to the observation of behaviour, I should first explain my usage of the terms 'behaviour' and 'conduct.' I use the former in a more general sense than the latter. By 'behaviour' I mean any kind of response by an organism to its situation, including the use of symbolism, especially in speech and writing. By 'conduct' I mean behaviour, in certain types of situation, consisting of a more or less systematic pattern of response evoked in such situations by a more or less systematic symbol pattern or 'code' which is integral to the experience of the individual concerned. I think this is sufficiently congruous with common usage. Psychology is concerned both with behaviour in general and with conduct in particular, though other fields of study, which we shall later consider—more particularly ethics and morals—are concerned more especially with conduct. There is of course no precisely defined borderline at which behaviour becomes conduct.

Some psychologists—the so-called 'behaviourists'—maintain that the only proper study of psychology is in the observation of behaviour. Behaviourists vary in the degree to which they press their thesis. Some maintain that observation of behaviour is the prime, but perhaps not the sole, justifiable method of psychology. Others hold that it is the only justifiable method. Others go still further and assert that it is the only *possible* method, introspection being meaningless, as there is no such thing as 'consciousness.'

I shall consider in the sequel those three departments of psychology which seem to me to be most relevant to the purpose of this book—namely, the psychology of the 'conscious' (including the 'subconscious') in its current and traditional sense, the psychology of the 'unconscious,' and quantitative psychology. In quantitative psychology I shall deal, not with laboratory psychology concerned with such things as reaction times, sensory acuity, psycho-galvanic reflex, and so on—which shed little fresh light on my main thesis, especially after the consideration of physics—but with that side of quantitative psychological work typified by the 'measurement' of 'intelligence,' which serves to illuminate in a striking way the general nature of symbolism.

Before proceeding to this main task of the present chapter, however, some consideration should be given to the thesis of behaviourism.

Behaviourism

Opinions may differ as to the relative merits and fruitfulness of the introspective and behaviouristic methods respectively, but argument as to the justification of introspection as a psychological method is barren, and indeed unrealistic. Many of those generally accepted as psychologists have used—and still use—the method of introspection, and it can be disposed of only by defining 'psychology' and 'introspection' in such a way as to lead automatically to the conclusion that introspection is unjustifiable. But this of course does not really dispose at all of introspection as a proper psychological method practised by accepted psychologists.

A fortiori, those who assert that 'introspection' is meaningless because 'mind' and 'consciousness' do not 'really' exist at all have no case, for the terms involved have been regularly and usefully employed by accepted psychologists for whom the terms clearly have meaning arising in their experience. 'Mind,' 'consciousness,' and hence 'introspection' could therefore be disposed of only by arbitrarily defining them in such a way as to be inconsistent with the definitions resulting from the meanings which the terms have for the psychologists who use them.

It follows, therefore, that, while the extreme behaviourist is naturally at liberty to limit himself to behaviouristic method in his psychological study, he has no case for objecting to the use of other methods as well by other psychologists.

Conscious, Subconscious, and Unconscious

For reasons which I have stated in connexion with other questions of similar type, the question 'What is consciousness?' is not significant; rather is it necessary to explain one's usage of the terms 'conscious' and 'consciousness' and the consequent relation to these of the other symbols employed in the symbol system which constitutes the psychological field. The aim must be to develop a symbol system which satisfies the criteria of harmonious consistency, adequacy, and effectiveness already considered in other contexts.

The use of 'conscious' and associated terms by psychologists and philosophers in relation to other symbols has been a fruitful source of contradiction, and therefore of unceasing and generally barren controversy. The main difficulty arises, I think, from the extreme generality of the term 'consciousness'; it emerges not so much from particular experiential situations as from experience as a whole. I shall therefore pass over the typical arguments, past and present, and simply state that in my own symbolism I use the term 'consciousness' in the sense that where there is experience there is consciousness. I shall define the related term 'awareness' as synonymous with 'consciousness.' Where we speak of the individual monadic experience by such terms—to be considered later—as 'I,' 'my,' 'mine,' or the corresponding terms in the second and third persons, I should use such phrases and sentences as 'my consciousness,' 'I am conscious,' and so on.

I think the only objection of any even *prima facie* validity to this kind of usage arises from the assertion that on some occasions we experience things of which we are not 'at the time' conscious or aware. But I do not think there is any real force in this objection. The situations which give rise to it are those in which we experience something, say *X*, and say that the nature of *X* leads us to suppose that we must have experienced something else, *Y*, though we did not notice it or it was below our level of perception. But all that this comes to is that we cannot frame a satisfactory symbol system in this context without including symbols like *Y* as well as those like *X*; the further statement that we must have experienced *Y* is invalid, and results from the usual mistake of hypostatizing symbols as 'corresponding to' actual entities.

Let me illustrate by a typical example. We sometimes perceive an element in our experience as familar, though we have not observed a similar element before. We are then inclined to say that such an element must actually have formed part of our experience previously, though we were not then 'conscious,' or 'aware,' of it. But such a conclusion is by no means necessary. Indeed, all that we are entitled to say is that familiarity is a characteristic of certain experiential situations, sometimes when elements in the latter are remembered as similar to other elements experienced on previous occasions and sometimes when this is not so. That is the bare fact. Of course, we can and must deal with this fact by including in our symbol system symbols such as causes of, or factors in producing, the perceived results, but these causes or factors need not, and should not, be symbolized as parts of experience, and we avoid much difficulty and contradiction by refraining, as I propose to do, from talking about 'unconscious experience.' Other relevant examples differ in type from the 'familiarity' case which I have taken, but the same general considerations apply to them all.

I shall symbolize the field of symbols such as the *Y*-type factors referred to above—that is, symbols which do not emerge directly from non-symbolic experience but from other symbolic experience-content developing directly from the non-symbolic—by the term 'subconsciousness,' or 'the subconscious,' as this is the term most congruous here with common usage. The factors in question will be said to be 'subconscious.' Terms sometimes used as more or less synonymous with 'subconscious' are 'fore-conscious' and 'pre-conscious,' and, in certain contexts, 'subliminal,' but the common usage of all these terms is variable and shot through with ambiguities and contradictions when considered in relation to other symbols frequently employed. I shall use only the term 'subconscious,' and as a symbol evoked by certain aspects of experiential situations and useful in evoking effective responses for dealing with other experiential situations. I regard the term as precisely analogous to such terms as 'particle,' 'wave,' 'space-time,' and so on, in the physical field, such terms, like all other symbols, being responses evoking other responses for dealing effectively with experience, but not to be hypostatized as 'denoting' or 'corresponding to' actual entities. It is hardly necessary to add that 'subconsciousness' is applied usefully in contexts other than, though related to, those illustrated by the examples given.

The content of experience and changes therein are often associated with what we describe as a sense of 'agency' within the experience in question. But this is often not so; we then find it useful for certain purposes to employ a symbol defined in effect in this context as 'an agency not within the monadic experience concerned.' This symbol is 'stimulus,' and what I have said describes my usage of that term. A stimulus is very frequently, though not always, physical, and the symbol is of use in relating the symbol systems of physics, psychology, and physiology; like 'subconscious,' it is analogous to the symbols of the purely physical field. Stimulus is related both to the conscious and to the subconscious. For example, as a symbolism for handling certain experiential systems, we may say that a stimulus has produced subconscious results, though not conscious effects except perhaps on a subsequent occasion.

The symbolism of subconsciousness is also involved in the symbolism of memory and recollection. For instance, we find it useful and consistent to say that memories when recalled 'come from the subconscious,' and that only the content of the subconscious can be recollected, though the reverse is not always the case—we cannot always at will recollect what is subconscious.

We must now consider the term 'unconscious.' Here a complication arises from the distinction between the ordinary traditional and the modern technical usages of the term. The ordinary meaning of the term has emerged in experience from a combination of two processes. One consists in the occurrence of certain discontinuities in the temporal series of the individual as checked by clocks and by the statements of other people. This is symbolized as periods of the 'public' time-series with which no events within the individual's own experience are correlated. He then speaks of himself as being 'unconscious' during these periods of public time. The other process consists in the observation by the individual in his own experience of cessation of all movements, except certain rhythmical organic activities, on the part of the bodies of other people, or animals. The individual then speaks of the latter as being 'unconscious,' for he knows from the reports of others that his own body exhibits to them a similar cessation of movement when he is, as he says, 'unconscious.' Unconsciousness may occur in a variety of ways, and different familiar names are associated with it, such as, for example, 'sleep,' or 'anæsthesia,' according to the circumstances in which it occurs. When unconsciousness is permanent it is called 'death.' This symbolism is consistent and adequate within the appropriate field.

Since the development of psycho-analytic technique the term 'unconscious' has acquired another and more specifically technical meaning. This meaning is in itself by no means incongruous with the ordinary meaning, though its usages in some contexts in the symbolism of certain psycho-analysts may be so. Generally speaking, however, human behaviour in the widest sense is, according to the psycho-analysts, largely determined by factors which, though they might be said to be 'mental,' are not conscious. The field of these factors is called 'the unconscious.' 'The unconscious' is a symbol, and a useful and effective one, but, like the 'subconscious,' it is analogous to the symbols of physics, and should not be hypostatized. It is a response to certain occurrences in experience, occurrences which are therefore conscious and can lead to other responses for dealing effectively with the experiential situations involved. The practising psycho-analyst obtains his data from events, including observation of the behaviour of his patients, within his own experience, and his observations together with his particular symbol system evoke from him responses which we call the 'treatment' of his patients.

I shall consider the psychology of the unconscious later in this chapter. Here I will only point out that the unconscious differs from the subconscious in one particular important respect—namely, that its 'contents' can never be brought into consciousness at will.

Psychology of the Conscious

I have not so far referred explicitly to the usage of the term 'mind,' although psychology has often been called 'the science of mind,' but at this point some discussion of the term is appropriate.

I do not think it is worth while giving much consideration to the *meaning* of the term, for this differs widely and in bewildering variety for different people, perhaps inevitably so. It is the usage of the term implied in its *definition*—that is, in its relation to other symbols—which is relevant to my present purpose.

Even the usage of psychologists in regard to the definition of 'a mind' shows a large degree of variation and ambiguity. For example, in speaking of sensation and perception a distinction is often made between the 'act' of sensing or perceiving and the 'content' or 'object'—namely, sensa or percepts. Some psychologists include both under the term 'mental' as parts of minds; others speak as if the act were mental but not the content or object—both the latter terms are used with no very clear distinction between them. On the other hand, in regard to imagination and thought both act and content are generally regarded as mental. Feelings again are generally regarded as mental, though there is a somewhat uncertain border-zone here. The definition of mind which is being employed is, in fact, rarely stated explicitly and precisely.

I do not propose, therefore, to discuss these varying and confused definitions of 'a mind,' but will briefly and simply state my own definition as an element in the symbolism I am developing. I define 'a mind' as the whole of the experience of an individual—that is, in effect, the whole content of what I have called a 'monad' or 'individual monadic experience.'

At this point it might be asked whether I should include the subconscious and the unconscious as parts of a mind thus defined. To this I should reply that I should include in a mind those experiential situations which give rise to the symbols 'subconscious' and 'unconscious,' and of course the symbols themselves; it is unnecessary to consider anything else in the psychological context if we refrain from invalid hypostatization.

In view of the traditional distinction and comparison made between 'mind' and 'matter,' and the problems resulting from this, it will be well to make a brief digression here to explain my definition of 'piece of matter' or 'material body.' This was, I think, implicit or explicit in much of the preceding chapter, but I would add here that I take the term 'material body' to be a symbol evoked by certain aspects of non-symbolic and symbolic experience. Included in these are certain symbols—in speech or writing—which, for the individual concerned, constitute communications and reports from others. Thus if we take some particular material-body symbol—*e.g.*, 'the planet Venus'—both the meaning and the definition of this for any individual will involve communication from others and symbolic records, all of which, of course, lie within the experience of that individual. But I hope it will now be sufficiently clear that for our present purpose the main distinction between the terms 'mind' and 'matter' in my usage is that the former is a symbol arising from the whole of an individual experience while the latter is a symbol arising from certain types of situation within that experience. Further possible implications of the occurrence of these symbols will be considered later, in Chapter VII under metaphysics.

In discussing that part of the study of mind which is comprised in the psychology of the conscious we may profitably start from the useful and well-established terms 'cognition,' 'conation,' and 'feeling.'

The usage of the term 'cognition' is wide and flexible, and for this reason it is difficult—and probably unnecessary—to define it precisely; it is sufficient to exhibit its relation to other symbols in this field. Thus a process of cognition is said to occur in 'sensation,' 'perception,' and the operations of 'thought.' All these terms will have *meanings* for individuals; but for psychology the relevant matter is their relations to one another and to 'cognition' as symbols in a coherent and consistent symbol system. This subject is elaborated in psychological works, the details of which need not concern us, for they are not involved as such in epistemology. I would point out, however, that the usage of 'cognition' includes both the symbolic and the non-symbolic (as in sensation) and that, unlike 'knowledge,' cognition does not necessarily involve the symbolic—though it may often, perhaps generally, do so, at any rate in the case of human beings.

If we were to look for some general distinguishing feature of cognition we should find it, I think, in that frequent development of symbolism which describes cognition as a relation between a 'subject' and an 'object,' the relation-symbol being some such word as 'attention,' 'presentation,' or even 'cognition' itself. Thus it is said that the subject 'attends to' or 'cognizes' the object, or the object is 'present' or 'presented to' the subject.

In spite of repetition I wish to emphasize again here that all these symbols, like symbols in other fields, are responses to experiential situations which evoke other effective responses, and are not labels for definite existent entities. But I realize that some of the terms involved may properly be considered in a metaphysical as well as a psychological context, and I shall discuss them in due course in the chapter on metaphysics. I would suggest again, however, that the symbol 'subject' arises from the unity of the individual experience, and the symbol 'object' from the variety of content within that experience, the relation between subject and object being the relation between what may be called the 'existential unity' of the individual experience and what may be called its 'structural diversity.' I do not think that these two symbolic phrases involve any contradiction or inconsistency as elements in the relevant symbol system.

The detailed study of the field of cognition is a matter for psychology, not epistemology, and the criteria by which it should be judged are the self-consistency of the symbol system it employs and the effectiveness of this system for dealing with experience. Two important aspects of the field of cognition are involved respectively in what we call 'association' and—a more recent development—in what was termed by Spearman "the eduction of relations and of correlates." [1] It would be out of place to follow up these aspects in this general inquiry, but a study of the relevant work makes clear that in the manner of its development it effectively illustrates the nature of symbolism.

There is, however, one topic which arises in connexion with cognition in general and association in particular which deserves a brief mention here, and that is 'memory.' The main point to emphasize is that all the symbols employed in the study of the psychology of memory—including the word 'past' and, indeed, the word 'memory' itself—emerging as they do like other symbols from experience, function entirely in what we call 'present.' An essential characteristic of experience is, as we say, 'to be present.' Hence the symbols involved in the psychology of memory emerge in what is present and are used in dealing with experiential situations which, by their very nature, are present. There should be no existential hypostatization of something to which the term 'past' may be attached as a label. I have already referred to this in the preceding chapter. There will be more to say about memory in connexion with the subconscious.

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[1] See his *The Nature of "Intelligence" and the Principles of Cognition* (Macmillan, 1923).

Psychological symbols of a different kind which have emerged in experience are words such as 'agency,' 'activity,' 'striving,' 'effort,' and so on. We bring such symbols under a more general symbol—namely, the word 'conation'—and here again we use the subject-object symbolism. We speak of conation as a process involving a 'subject' and an 'object' in relationship. It is the subject which is 'agent' or 'active,' and the process of activity 'aims' at certain 'objects.' I suggest that we use the subject-object symbolism in the field of conation as well as in that of cognition because in both cases the distinction between the existential unity and the structural diversity—or diversity of content—of experience are involved.

I do not propose to enter into the controversies which occur from time to time as to whether the sense of agency or activity relates to anything 'real' or not. Such controversies seem to me to be barren, and, indeed, without significance. For the simple fact is that such terms as 'agency' and 'activity' have emerged in experience, and therefore have meaning, and they are useful and can be appropriately woven into a symbol system without in themselves introducing inconsistency into the system. That is all that is relevant.

The symbolism of conation brings in new symbols in connexion with the subject-object relation—namely, such words as 'end' and 'purpose.' We speak of conation as a process in which the 'activity' of the 'subject' is determined by a 'purpose,' consisting in the achievement by the process of some 'end' which is the 'object' of the conation. The view of the nature of symbolism which I hold releases us from any necessity for arguing about 'entities' or 'factors' 'corresponding to' the various symbols. The fact is that the latter mean something to us, and the only point is whether psychology, by interrelating the symbols through definition and otherwise, can weave them into a coherent pattern which evokes responses which are effective in application to experiential situations. The development of psychology leaves little doubt that this can be done, though it would be too much to say that psychological symbolism is here completely self-consistent and effective. But such defects as exist are not inherent in the general pattern of the symbolism, but only in its details. In any case, it is for psychology itself to remove such defects.

There is one symbol arising in connexion with conation which provides a link with the third region of the field of psychological study, that of 'feeling.' This symbol is the word 'satisfaction,' a term arising from experience of the successful achievement of the end of a conative process.

The interrelationship of the terms here involved is broadly as follows. Some experiences evoke from us such terms as 'pleasure,' 'joy,' 'satisfaction,' 'sense of fulfilment,' 'comfort,' 'contentment,' and so on, and their associated adjectives. Other experiences evoke terms such as 'pain,' 'sadness,' 'dissatisfaction,' 'sense of frustration,' 'discomfort,' 'unpleasure' (somewhat technical, and not so extreme as 'pain'), 'discontentedness,' and so on. All the terms mentioned have meaning for us. They cover the realm of 'feeling,' and the general symbol arising from them is the term 'feeling-tone.'

For feeling-tone associated with terms of the first type I use the words 'eutony' and 'eutonic.' For feeling-tone associated with terms of the second type I use the words 'dystony' and 'dystonic.'

One relevant term to which I have not so far referred is 'happiness.' The usage of this term varies, but I think it would be true to say that, whereas the common terms already mentioned are generally used in connexion with relatively transitory and less integrated phases of experience, 'happiness' is generally used of relatively enduring, stable, and integrated phases, of which pleasure, joy, contentment, and other forms of eutony are components in varying degrees and combinations.

There are in fact no sharp dividing-lines between the various forms of eutony and of dystony.[1]

Eutonic experience at its fullest in human beings is, I think, marked by some fairly well-defined characteristics. It involves a sense of inner harmony and of satisfactory adjustment to the environment in all its aspects, together with freedom from conflict, as distinguished from *effort*, which is sometimes an important factor in eutony. It involves a sense of activity—especially creative or constructive activity—in which it is felt that all one's abilities and potentialities are being called into play and developed. Finally, it involves contemplative and appreciative attitudes of mind often associated with a sense of relaxation. These elements may or may not all be present together in varying degrees; in any case, they are closely interrelated, and the degree of eutony itself depends on their relationship and the balance between them.

A fundamental problem for psychology, the answer to which has important bearings on other fields, especially that of ethics, is whether in conation the aim of activity is always the achievement of eutony, or more strictly the production and establishment of experiential situations with eutonic feeling-tone. This problem is a traditional one, though it has often been posed, and its answer stated, in terms of the restricted word 'pleasure,' as, for example, in the thesis of 'psychological hedonism' to the effect that we always in fact seek pleasure or the pleasurable.

Before considering the matter in relation to eutony in general, it is worth mentioning briefly some of the points which have arisen in the narrower field in connexion with the controversy about hedonism. I would first of all state that it seems to me that the evidence of experience clearly shows that the view that we always seek *pleasure*, as one particular form of eutony, cannot be sustained. Nevertheless, some of the arguments against psychological hedonism, of a type which might also be raised against a similar theory in terms of eutony in general, seem to me invalid.

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[1] In a previous book (*Happiness, Freedom, and God* (Harrap, 1944)) I used the term 'happiness' as a general key symbol. But although I carefully defined my usage of the term (*cf. op. cit.*, pp. 28 *f.*) some of the comments of reviewers and others showed that they were assuming that I was using the term in a sense in which I was not in fact using it. In the present book I have therefore preferred to write in terms of a special word, 'eutony,' which is unlikely to have pre-existing associations in the minds of readers.

To take first a somewhat crude, though by no means altogether typical, example, it has been suggested that if hedonism were true we must all have starved in infancy, for the *initial* impulse of a baby to suck milk from the breast cannot have been due to the desire for pleasure, since on the first occasion the baby cannot know that the action would result in pleasure. Such an argument seems to me quite irrelevant, for surely no hedonist would maintain—at any rate, if he wished his thesis to hold water at all—that activity resulting in pleasure is always the result of a conscious and deliberate process of reflection and imagination. What psychological—as distinct from ethical—hedonism in fact asserts is that activity can be seen to be always directed to pleasurable ends (or, the removal of the unpleasurable) even should these ends not be actually achieved; it says nothing about the nature of the processes preceding the activity, which may or may not involve knowledge, thought, and imagination. The behaviour of the newly born baby before suckling is such as we associate with discomfort or a sense of lack. The baby's behaviour when suckling takes place is such as we associate with pleasure. These are the facts, and they are quite consistent with psychological hedonism. The hedonist need not assume that the baby thinks about or imagines the pleasure beforehand; indeed, we interpret its behaviour in a contrary sense.

Similar considerations apply to objections to hedonism based on the occurrence of acts upon 'impulse,' while a third type of objection which distinguishes between an 'impulse' and its 'object' turns on purely verbal considerations. For the kernel of the hedonist contention is contained, not in the statement that we always seek pleasure, but in the more precise statement that we always seek to produce such experiential situations as have pleasurable feeling-tone; and we cannot separate the satisfaction of the impulse from the production of the situation in question. The satisfaction of the impulse *is* in fact the production of that situation, but the relevant characteristic of the latter in this context is its pleasurableness, and not its other features. Yet, as I have said, I do not think that psychological hedonism, stated simply in terms of pleasure, can be sustained; but what of the wider thesis that all the activity of human beings and other organisms is such as to tend to result in *eutonic* situations, even though, owing to opposing factors, this result is not always achieved? I believe this thesis to be true.

For convenience and brevity I shall call the general theory 'eutonism,' and, for reasons which will be apparent later,[1] I am not concerned to make a distinction between 'psychological' and 'ethical' eutonism, for which latter see Chapter VI. I hold eutonism to be true because I think it is required if the symbol system—in the present context the psychological symbol system—is to be self-consistent and effective.

What is the general distinction between experiential situations which, as we say, we 'seek' to produce and those which, as we say, we 'avoid,' or try to get rid of? I suggest that integral characteristics of the former type of situation are those from which symbols of eutony, such as the terms I have mentioned, emerge, and that integral characteristics of the latter type of situation are those from which symbols of dystony emerge. Eutonism therefore provides in the symbol system for the necessity of making that system self-consistent, and, subject to proof to the contrary, I suggest that eutonism is consistent in itself and evokes responses which are effective; if it be asked 'effective' for what I should reply effective for the production of eutonic situations. Such circularity is one of the criteria of self-consistency, for, as I pointed out in the second chapter, circularity is involved in the 'truth' of a symbol system. In a true symbol system *all* the symbols are interrelated, even though some may—and generally will—have originally emerged in non-symbolic experience; there can be no loose ends. The criterion of the truth of a symbol system lies in relations between symbols, including symbols emerging in situations resulting from the responses evoked by the symbol system. For example, in 'prediction,' as I have pointed out, we are really concerned to see whether symbols emerging in certain situations, produced at least in part by responses evoked by an existing symbol system, can be taken up consistently into that symbol system. Symbol systems lacking in circularity of this kind issue in contradiction; and I say, "circularity of this kind," for there is also a 'vicious' type of circularity, which I shall consider in due course, though it is not exactly that to which the term 'vicious circle' is sometimes applied.

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[1] See especially the chapter on Ethics.

I would go further, and maintain that it is the denial of eutonism, with the consequent conflicting response-tendencies, which has led in the realm of theory to endless, and largely fruitless, philosophical discussion, and in the realm of practical affairs to endless human conflict and misery, arising in part from ideological struggles of various types. But we shall be concerned with this more fully in the field of ethics.

I will add here one more illustration of this point I am making. A patient who comes for psychological treatment would generally be said to be in a situation which he finds dystonic. The proper aim of the psychologist would generally be said to be the removal of the dystony and the substitution for it of a state of eutony. Hence the psychological treatment, itself based on eutonism as a theory of human behaviour, is directed to producing a eutonic situation, not only for the patient but also for the psychologist, in the form of a sense of professional satisfaction at the achievement of the end arrived at. This is the kind of circularity here involved, and I suggest that it patently justifies itself.

It is necessary, however, to consider the application of eutonism at different 'levels' of experience. At the level of very young children and non-human organisms eutonism applies in the simple form already stated—that is, at this level behaviour is directed to the establishment of eutonic situations even though these may not be actually achieved, or may turn out also to involve dystonic elements leading to further adjustment responses. But at the level of what we call 'reflective thought' and 'self-consciousness'—that is, the level at which relatively comprehensive and ordered symbol patterns have emerged in experience—it is realized that, in life as it is, eutony is rarely, if ever, obtainable unmixed with dystony. The thesis of eutonism should therefore be stated in the more general form 'All behaviour is such as to tend to maximize eutony and minimize dystony.' At the lower level responses are largely—though by no means entirely—determined by the immediate situation, and short-term aims. But at the higher level long-term aims are also involved to an increasing degree, and a measure of temporary dystony, and even of dystony which may endure to some extent as far as can be foreseen, may be deliberately accepted, though the attempt will still be to maximize eutony and minimize dystony.

Here we are in the field of ethics as well as of psychology, for 'behaviour' becomes 'conduct'; and at this point I will only state my view that, even in extreme examples of such conduct as we call, for instance, 'altruism' or 'self-sacrifice,' the aim of conduct, whether achieved or not, is that which would maximize eutony in the balance of conflicting elements. This is demonstrated in one way by the use in connexion with the types of conduct mentioned of such terms as 'fulfilment,' 'satisfaction,' and 'happiness.' Thus it is commonly said—not rarely by the agents themselves—that they find their greatest 'happiness' or 'satisfaction' or 'fulfilment' in the service of others, or perhaps, in the case of religious persons, in the service of God. But we here pass beyond psychology proper, and the ethical questions which arise must be considered in their proper place—though I would say now that I do not of course maintain that every act of conduct is immediately preceded by deliberate thought about its eutonic consequences.

Nevertheless, the guiding symbol pattern which has been established in the experience of the individual concerned, and which determines his responses to experiential situations, is developed with the aim of achieving maximum eutony, even if this aim be not consciously present on particular occasions. Moreover, the operation of the eutonic principle is universal in experience, for it is involved not only in more specifically conative but also in more specifically cognitive situations, where it arises in the 'achievement' of 'truth,' a phrase which I used and explained in the second chapter.[1]

I will now try to summarize what seems to me to be an adequate, effective, and self-consistent basic symbol system for the psychology of the conscious.

A 'mind' is the whole content of an individual monad or monadic experience. Psychology is concerned with the study of this content in all its aspects. In this psychology differs from such sciences as physics and biology, which are concerned only with special types of experiential situation, and this difference, and the corresponding comprehensiveness of psychology, no doubt accounts for the traditional association of psychology and philosophy. This association has tended to diminish considerably in recent years owing to the development of psychology in certain directions as a quantitative science, and also to the inclusion in its field of the study of the behaviour of human and other organisms. The data for the study of this behaviour occurs in the sense-experience of the psychologist, and here psychology becomes more closely associated with biology, physiology, and physics, from which it is not separated by any very clearly marked border-zones.

A prime distinguishing characteristic of a mind or monadic experience is its combination of what we call 'existential unity' and 'structural diversity,' or 'diversity of content.' Hence we have in the unitary monad differing experiential situations or phases of experience embracing an indefinite variety of pattern, with shifting distribution of intensity or emphasis. The 'subject-object' terminology is a convenient and effective symbolism for dealing with this, the terms 'subject' and 'object' arising respectively from the existential unity and the diverse content of experience. Thus to say that the subject 'senses,' or 'perceives,' or 'imagines,' or 'desires,' or 'aims at' an object is equivalent to saying that the unity of the monadic experience is exhibiting in its content a certain pattern or type of experiential situation.

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[1] See p. 68.

The terms 'cognition' and 'conation' arise from the two broad types of situation and the processes which these embody. Further, and most important, all experiential situations are pervaded by what we call 'feeling-tone,' which may be either 'eutonic' or 'dystonic.' Various terms, both common and technical, are associated with one or other of the general symbols 'eutony' and 'dystony,' and these terms I need not repeat.

The terms of eutonic type emerge from situations which we seek or try to maintain; the terms of dystonic type emerge from situations which we avoid or try to remove. Hence we may say that all the adjustment-responses which constitute both the 'mental' and the 'bodily' behaviour of the individual are directed, successfully or unsuccessfully, to the maximizing of eutony and the minimizing of dystony in experiential situations. This is the thesis of psychological eutonism.

This aim of behaviour may or may not involve deliberate thought and imagination—often it does, often it does not. Nevertheless, the aim, whether definitely 'in mind,' as we say, or not, and whether successfully achieved or not, is as stated by psychological eutonism.

It is here, in the consideration of basic symbolism, that we begin to pass beyond the bounds of the psychology of the conscious. In the detailed development of the latter by psychologists a point is reached when it is found that the consistency and adequacy of the symbolism can be maintained only by the introduction of new symbols, which must be reconciled and interrelated with the symbol system already existing. The need for this is felt, for example, in connexion with memory and certain other aspects of cognitive and conative experience, one of which has just been mentioned in connexion with behaviour the aim of which is not 'consciously in mind.' We pass here, in fact, to the psychology of the 'subconscious' and the 'unconscious.'

Psychology of the Subconscious

Up to a point, we are able to develop the symbolism of psychology in terms of processes and occurrences exhibiting continuous temporal sequence within experience. The whole content of this part of the psychological field consists in actual experiential situations, and is therefore, as we say, 'conscious.' But there are certain features in experience which the symbolism thus developed is not able to cover adequately, and I have made some reference to this earlier in this chapter. A particularly important example occurs in the case of memory. The memory-images arising in experience are generally separated from previous experiences which they resemble—and which are of various types, sensory and other—by lapses of time which may be considerable In the intervening period memories which are not then conscious are said to form part of the content of what is called the 'subconscious,' from which they may from time to time 'rise into consciousness' in certain conditions, one of which is the occurrence of the cognitive and conative process which we call 'recollection.'

Now, it cannot be too strongly emphasized that the actual facts consist in occurrences within experience or consciousness, and therefore that the term 'subconscious' and the pattern of symbols developed in connexion with it are just responses to certain experiential situations which themselves evoke further responses found to be useful and effective in dealing with such situations. The 'subconscious' is thus analogous to the symbols associated with the 'unobservables' of physics; it should not be hypostatized as some existent entity outside experience or the conscious. This hypostatization would be quite unwarranted, and is quite unnecessary. Certain situations occur in experience, such as those we call 'remembering,' or 'recollecting,' and our activities in connexion with such situations are themselves parts of experience, and conscious. In so far as these activities involve deliberation and thinking—that is, symbolic experience—they are responses evoked by symbol systems, and the symbol system which constitutes the psychology of the subconscious is an effective one for this purpose, though, like other symbol systems, it is subject to continual modification and improvement in order to make it more effective.

The symbolism of the psychology of the subconscious covers experiential situations other than those associated with memory. For instance, something may occur in our experience which leads us to say that it is a consequence, at any rate in part, of some previous occurrence which we 'did not notice at the time,' or which was due to some physical or other 'stimulus' which, in the conditions then obtaining, was not strong enough to make its effects felt in consciousness, though it left some 'trace' on the individual which afterwards produced effects in consciousness. We speak of all this kind of thing as occurring in the subconscious, and we sometimes speak of the effect of a stimulus which is too weak to be experienced consciously as 'subliminal,' a term which is also used more widely as referring to what is 'below the threshold' of consciousness, the 'threshold' being regarded as a kind of borderline between subconscious and conscious.

Another term which is sometimes used in this connexion is 'tendency.' It is said that some things, though their effects are not experienced at the time, give rise to 'tendencies' to the later occurrence in experience of certain elements. This again is extended to cover certain parts of the content of experience which are said to pass out of consciousness but later give rise to experiential occurrences—*e.g.*, memory-images. There is then said to be in the subconscious a tendency to produce conscious memories.

What I have been saying illustrates the general pattern of the verbal symbolism constituting the psychology of the subconscious. Its detailed development is a matter for psychological study, and does not concern us here; but it is self-consistent, and provides an extension of the symbolism of the ordinary psychology of the conscious, which is inadequate in itself to cover certain features of experiential situations, and it can also be linked consistently with the symbolism of behaviouristic psychology. But it is nevertheless a symbolism which emerges in experience—that is, the content of the conscious—and the justification of which lies in the effectiveness of the responses it evokes for dealing with experience. The symbolism of the subconscious derives all its meaning from the conscious.

My insistence on relating the terms 'experience' and 'the conscious' will be noted, and I have dealt with this question in my earlier consideration of those terms. I know that people sometimes speak of unconscious or subconscious experience. This is, of course, a matter of the usage of terms, but it seems to me to be unnecessary and confusing, and to lead to inconsistencies and contradictions. I submit that my own usage of the terms is perfectly consistent and adequate, and fits coherently into the general symbolism I have been developing.

The points raised in this section are perhaps illustrated even more strikingly when we go on to consider the psychology of the unconscious.

Psychology of the Unconscious

In developing the study of mind embodied in the psychology of the conscious it is often found impossible to relate certain occurrences in experience, mainly of the kind we call 'mental,' directly and continuously to other incidents in experience. In some cases the events in question can be related to other occurrences, separated from them by a temporal or other unusual gap, without any apparent continuous process in experience linking the two sets of occurrences; and this, as we have seen, gives rise to the symbolism constituting the psychology of the subconscious. But sometimes occurrences in the experience of the individual cannot be linked in this fairly simple, though indirect, way. It thus becomes necessary to extend our symbolism still further, in developing what is called the psychology of the unconscious.

A simple example will serve to illustrate the difference between the psychology of the subconscious and that of the unconscious. In the case of memory, present experiences can be related to past experiences through memory-images which, if they do not occur spontaneously, can usually be brought into consciousness by the conative act which we call 'recollection.' The memory-images involved, when not conscious, are regarded as being 'subconscious,' or 'in the subconscious.' But frequently it is not possible for the individual to relate present and past through memory and recollection. The symbolism for dealing with such cases takes the form of asserting that past experiences give rise to factors which, though they cannot be brought into consciousness in the normal way as in the case of memory-images, nevertheless influence subsequent experiences, often profoundly. Such factors are said to be 'unconscious,' or 'in the unconscious.'

Now, it must be repeated again that all psychological facts, like physical facts, are actual experiential situations, or occurrences in the experiences of individuals. Hence the symbols of the psychology of the unconscious are just responses to certain types of experiential situations, and themselves evoke appropriate and effective responses from the individual, and from others who may be concerned with him; in dealing with these situations. The symbols must not be hypostatized as 'representing' actual entities, and in the course of the following discussion of the psychology of the unconscious this should be continually borne in mind.

Broadly speaking, the content of the unconscious is regarded as including two types of operative factors. The first type is held to be constitutional, or inborn in character—that is, the factors involved are part of the make-up of the individual from birth. Some of these factors are common in kind to all human beings. The traditional name for these was 'instincts,' but this term has of late been called in question. The actual term employed is not, however, of importance for our present purpose provided its usages and its definition are clear. Other factors, though innate, are peculiar to the individual, and considered to be derived from his particular ancestry. A modern and convenient term for factors such as we are considering is 'drives.' This term is not limited to 'unconscious' factors of the first type; such factors may be called 'innate drives.'

Now, I think it will be clear that statements in terms of innate drives are really statements about behaviour-responses, and these responses occur in experiential situations, either within the experience of the individual concerned in its 'mental' aspect, or within the observational experience of others who perceive the behaviour of that individual. The symbolism of innate drives is a response to the experiential situations in question which itself evokes responses for dealing effectively with these. The 'innate drive' is thus comparable in this respect with the symbols of physics.

The second type of factor may be called 'acquired drives.' These drives are held to arise from experiences of the individual during his lifetime and to affect subsequent experiences. Various names are given to them according to the nature of the experiences involved, such as 'unconscious wish' or 'unconscious idea,' or, in the case of a more or less coherent and integrated pattern of factors, 'sentiments' or 'complexes.'

Now, in spite of the differences they display in origin and effects, I think that what I have said about the symbolism of innate drives applies equally to the symbolism of acquired drives. The latter is, however, peculiar in some ways. For example, 'unconscious wish' looks like a contradiction in terms, for the term 'wish' emerges from a certain type of *conscious* experience. But in speaking of the operation of an 'unconscious wish' what we are really saying is that the individual behaves in ways normally associated with a certain kind of conscious wish, though no such wish appears in consciousness. Again we are just speaking about behaviour, but the term 'unconscious wish' is innocuous provided this is borne in mind.

The points I have raised may be illustrated by an example. Suppose a person who is suffering from some kind of dystonic experience consults a psychologist. Everything the patient reports consists of occurrences in his experience. All the data of the psychologist consist of occurrences in *his* experience, especially the observed behaviour of the patient, including what he says. The symbolism which constitutes the psychological knowledge or theory of the psychologist, together with his observation of the patient, evokes from him certain responses in the form of action or of words addressed to the latter. These responses evoke certain responses from the patient, and the process may be continued over a period. If the result is the substitution of a eutonic for the dystonic condition the psychologist's technique, and the symbolism which evokes it, may be held to be justified. But throughout the facts are experiential. The symbols enter into the experiential situation and result in its being changed, but to hypostatize them is unnecessary and invalid.

I do not think it is necessary to say much more about the symbolism of the psychology of the unconscious. It has, of course, been greatly elaborated, and such terms as 'ego,' 'id,' 'super-ego,' 'repression,' 'censor,' and so on spring readily to mind. But all through we are dealing with experience, both symbolic and non-symbolic, and the validity of the symbol system is to be judged by its self-consistency and the effectiveness of the responses it evokes in producing the ends aimed at, not by whether there exist supposed factors or entities which the symbols 'represent.' At the moment the symbolism can be said neither to be altogether self-consistent—partly because of the sometimes profound differences of theory and technique between different schools of thought—nor to be altogether consistent with the symbolism of the psychology of the conscious, and of other fields of study. But this is a relatively new region of investigation, and some time must therefore elapse before further study and experiment produce agreement on a symbolism which is at once consistent in itself, consistent with other symbolisms, and effective in practice.

Quantitative Psychology

During the last fifty years or so there has developed with some rapidity a new line of psychological investigation—namely, that concerned with the 'measurement' of certain human characteristics. Starting mainly with tests of 'intelligence' it passed on to the production of similar tests of such things as 'special aptitudes' and 'educational attainment.' These included the so-called 'performance tests,' involving the manipulation of concrete material, as distinct from answers given in speech or writing, and afterwards comprised the testing of 'temperament' and 'character' and other features of individual and group psychology by methods based partly on techniques—*e.g.*, such as records and questionnaire responses—different from those employed in the original tests. The latter have been called 'objective' tests because the evaluation of their results is effected by standardized codes of procedure which render the results independent of the judgment of any particular assessor. In this way the tests differ from, say, the ordinary examination-paper.

In this new field approach and method are throughout behaviouristic in type—and quite rightly and properly so, because we are here dealing with observed behaviour as manifested in the responses, whether oral, written, motor, or overtly expressive, of the individuals we are studying. We put the latter into situations in which they are required to speak, or write, or perform certain movements; we observe their behaviour in these situations, and all our subsequent calculations are based on these observational data. The whole matter is experiential—that is, it occurs in the experience of psychological observers and calculators.

An elaborate, and now highly developed, mathematical and statistical technique has grown up in this field; but from the epistemological point of view the most interesting and significant material lies in the kind of symbolism which has emerged.

To begin with, I will take as an example Spearman's 'Two Factor' theory of 'intelligence.' It is not necessary for my present purpose to argue about the precise usage and definition of the word 'intelligence.' It suffices to say here that, in terms of ordinary experience, differences of intelligence in individuals are those which give rise to such terms as 'bright,' 'dull,' 'able,' 'stupid,' and so on, though these terms do often cover a somewhat wider range than that defined by the word 'intelligence,' and certain literal symbols associated with it, in technical and mathematical psychology.

Spearman's Two Factor theory asserts in effect that the degree of appropriateness and effectiveness of every intelligent activity of an individual is determined by the amount in his constitutional make-up of two factors, one a 'general' factor, so called because it enters into every intelligent activity of the individual concerned, the other a 'special' factor, which is specific to the particular activity involved. It is true that Spearman later modified his theory by the introduction of so-called 'group' factors—that is, factors common, not to all intelligent activities, but to certain groups of such activities—but this development, though interesting and important, does not affect the present argument.

Now, although Spearman's theory has been subjected to strong criticism, especially in its earlier forms, I think it is true to say that it has set the main pattern for all subsequent symbolism in this field. For the whole trend of development has been in the direction of what is called 'factorial analysis.' Factorial analysis is a manipulation of the statistics of test results (using 'test' in a wide sense) in such a way as to extract from them 'factors,' which are regarded as determining the nature of the test on the one hand—it is said to be 'weighted' in varying degrees with the factors involved—and the test-response of the individual on the other, according to the degrees in which the various factors enter into his make-up. All this is set out in a mathematical symbolism exhibiting the relationships between factors, test scores, and the correlations between tests and between individuals.

The factors of quantitative psychology, of which perhaps the best known is '*g*,' which provides a precise definition of that general intelligence to which I referred at the beginning of this section, serve as a good example of the nature of symbolism. For psychologists have realized that factors, though useful symbols for handling and applying the results of observation, are not to be hypostatized. They are the response of the mathematical psychologist to certain experiential situations, and they evoke from him more or less effective responses for dealing with such situations. This is illustrated by the fact that often quite different factor-patterns are found to be—at any rate, up to a point—equally self-consistent and effective. I will take two examples.

In criticizing Spearman's theory Godfrey Thomson showed that an alternative theory, which he called the 'Sampling Theory,' was just as effective in covering the test data as was the Two Factor theory. According to the Sampling Theory, test-response is determined by a very large number of uncorrelated factors in the make-up of the individual. In any given test a 'sample' of these factors is called into play.

Again, in the more recent developments of factorial analysis, it has been shown that, by various mathematical procedures, of which the best known is what is called 'rotating the axes,' the factor-patterns derived from any set of test results can be indefinitely varied. It is true that attempts have been made to assign pre-eminence to patterns of a certain type, sometimes on mathematical and sometimes on psychological grounds, but it is clear that such attempts are really arbitrary, and cannot be held to justify the view that there are definite entities 'corresponding to' the factor symbols.

It will be gathered from what has been said that the present situation in regard to factorial analysis is somewhat complex and confused. Different groups of tests—and sometimes the same group on different occasions—yield different factors and different factor-patterns. Perhaps in course of time a comprehensive symbol system will be evolved in this field which will cover all the relevant data and be consistent in itself and consistent with the symbolism of other fields. But however this may be it will not affect the question of the nature of factorial symbolism or of symbolism in general.

Conclusion

In this chapter I have been concerned only with the basic symbolism in certain important regions of psychological study; I have not been concerned with the development of this study in detail. In particular, I have not dealt with the interesting and significant symbolism associated with such terms as 'ego' and 'self-consciousness'—though incidentally, I would suggest that 'consciousness' begins to develop into 'self-consciousness' as symbolism emerges in the experience of the individual. I have also omitted reference to certain important schools of thought, such as the '*gestalt*' school, although the latter, with its emphasis on 'pattern,' is very much in line with my general thesis. But I hope I have said enough to show the application of my epistemological theory in the field of psychology, and the way in which the symbolism of psychology illustrates and confirms that theory.

CHAPTER V

Biology

Two associated terms emerge from certain aspects of experience—namely, the words 'organism' and 'environment.' The field of biological study consists of the experiential situations in which these terms emerge, and biology itself consists in the development of a symbol system, stemming from the two key symbols, which derives from such situations, and which evokes responses for dealing with them effectively.

Biology is concerned with the relationship of organism and environment, and with the relations of organisms among themselves. These two aspects of biology are closely interwoven, for part of the environment of any organism consists of other organisms. Biology is distinct from physiology, for the latter is concerned primarily with the individual organism itself; but the two are interrelated, for the nature of an individual organism and the processes it exhibits involve its relation with the environment, while the general interrelationships of organisms among themselves and with the environment evidently involve processes within the individual organism—that is, physiological processes.

Biology has, as one of its fundamental elements, a reference to the past, and in its symbolism it necessarily employs symbols with this reference—necessarily in the sense that without the inclusion of such symbols biological symbolism cannot deal effectively with the kind of experiential situations from which it has emerged and in which it is applied. This fundamental reference to the past marks a prime distinction between biology and physiology.

Biological symbolism shares the general characteristics of symbolism which I have already sufficiently discussed; nor am I here concerned with the details of the science of biology, which is a matter for a biological text-book. What has to be considered in the epistemological context are such questions as the relationship between the symbol systems of physics and biology, the implications of the reference to the past, and the validity—that is, the significance, effectiveness, and necessity—of certain symbols such as the words 'evolution,' 'life,' 'purpose,' and other associated symbols in the biological context. These questions are not, of course, independent of one another.

Physics and Biology

A perennial problem is that of the possibility of covering the biological field exhaustively with the categories of physical science—or, as I should say, the possibility of applying the symbol system of physics to the biological field without extending this system by the addition of new symbols and symbol patterns.

If we observe the behaviour of the bodies of organisms, considered as pieces of matter, nothing seems clearer *prima facie* than the fact that they do not obey the 'laws' of molar physics. It is true, of course, that the behaviour of organisms is, as we say, 'controlled' to a certain extent by ordinary physical laws, but on the face of it it seems that organic behaviour is determined by physical laws combined in some way with laws peculiar to the nature of organisms themselves. For example, there is in general a flexibility and variability in the responses of organisms to the physical environment of a kind which does not characterize the behaviour of inorganic bodies. The greater the complexity of structure of the organism the more clearly is this fact apparent, though the responses of simple and primitive organisms approach closely to the fixed routine responses of inorganic pieces of matter.

If we take these facts at their face value it follows that an effective biological symbol system must include symbols other than those contained in the symbol system of physics. Such symbols do in fact occur in biological science as it stands at present. In particular, one important symbol that has emerged in the experiential situations of the biological field is the word 'purpose.'

The meaning of 'purpose' derives primarily from psychological situations. The connotation of the term is explained in detail in psychological works, but, broadly speaking, we may say that when we carry out a train of activity directed to an end which we have before us imaginatively in advance we speak of acting 'purposively,' or 'with purpose.' Similarly, when we observe other people acting in an analogous way we speak of them as acting purposively. More generally, we go on to symbolize activities of all types of organism which seem directed to a future end by the word 'purposive'; and it is in this way that the terms 'purpose' and 'purposive' are defined for biology.

Let us examine the matter a little further by taking a specific example. The behaviour of birds in constructing nests appears to be directed to the future end of producing and rearing their young, and we speak of the latter as the 'purpose' of nest-building. Now we can no doubt simply say that, given certain initial conditions such as the presence of organisms of a particular type in a particular physical environment, certain consequences are observed to follow, which we call the construction of nests and the subsequent rearing of broods of young birds. Thus expressed, we have a statement analogous to the kind of statement which occurs in physics in relation to the behaviour of material bodies; but the kind of experiential situation involved is different from the situations involved in physics, and at present there seems no way of bringing it within the scope of the symbol system of physics—at any rate, of molar physics. On the other hand, the introduction of the word 'purpose' and its associated terms greatly simplifies the symbolism required to deal effectively with biological situations.

Another symbol which emerges in the biological context is the word 'life,' and we speak of organisms as 'living' or 'having life' as distinguished from the 'dead' or 'inanimate' bodies dealt with in physics. Again, it seems probable that the term 'life' derives primarily from psychological situations, but we apply it generally in situations involving material bodies of a certain kind of structure and texture, similar or analogous to our own bodies, and—what is more important—exhibiting that flexibility and variability of response and that 'purposive' type of behaviour to which I have already referred.

It will be seen that questions like "Are there really such things as 'life' and 'purpose'?" are non-significant. Nevertheless, attempts have been made from time to time to hypostatize 'life' as a definite entity or factor, indicated by such terms as 'life force,' '*élan vital*' (Bergson), 'entelechy' (Driesch), and so on. For reasons already explained, hypostatization of this kind is neither valid nor significant; the really important and significant question is whether such terms as 'life' and 'purpose' can be consistently fitted into the symbol system of biology, and are found to play a necessary and effective part there. As regards their necessity, I have already given reasons for supposing that biology cannot dispense with them by applying in its own field the symbolism of molar physics.

It will be noted that my reference throughout in this connexion has been to *molar* physics; but it may be asked whether the symbolism of microscopic physics cannot be applied in the biological field in such a way as to enable us to dispense with some or all of the symbols which have so far been included as specific in the symbol system of biology. In other words, can we apply to experiential situations involving the bodies of organisms and their environment the symbolism of microscopic physics, in relation to the physiological processes within organic bodies and to the physical and physiological processes in the environment, so as to deal with the situations concerned both effectively and exhaustively? Such an end has often been held up as a desirable ideal—no doubt mainly on the grounds of intellectual satisfactoriness—and attempts have been made to achieve it. One such fairly recent attempt has been made by Schrödinger in his book *What is Life?*[1] He comes to the conclusion that, although biological processes cannot be subsumed under the 'ordinary' laws of physics, nevertheless the 'new' principles involved are genuinely 'physical' ones.

I am not concerned to criticize in detail the attempts which have been made to cover the biological field by the symbolism of physics, and I will only say that I find these attempts quite unconvincing, and that in particular Schrödinger's train of argument does not seem to me to be sound. I therefore conclude that—at any rate at present—we cannot dispense with specifically biological symbols, and that in any case the use of such symbols enables us to deal with biological situations much more simply than if we were to try to rely on physical symbols alone.

It will, of course, be necessary to consider whether, and how, the symbol systems of physics and biology could be made mutually consistent, but this, as I shall later suggest, is really a question for metaphysics. Here I will pass on to consider the central theme of biology—namely, what we call 'evolution.'

Evolution and Heredity

If one studies the general usage of the term 'evolution' in connexion with the development of organic species it seems clear that its definition essentially involves the following factors. It is a process of relatively gradual and continuous change, and this process exhibits a definite trend from the simpler to the more complex, in the sense of a development from a single relatively undifferentiated organic substance to more and more variously differentiated organisms.

This process of evolutionary development is sometimes said to be a 'progress.' But what is the meaning and the definition of 'progress' in this context? If it is said to be the increasing diversity of structure and function then the definition is clearly arbitrary, and merely a brief synonym for the process itself. If, on the other hand, it is said to consist in increasing 'control' of the environment the point recurs, for we have then to ask what is the definition of 'control' in this context, and how it is related to organism and to environment and to their interrelations. In what sense—if any— is (say) man's control of man's environment greater than the jellyfish's control of *its* environment? For it must be remembered that organism and environment cannot be considered in separation—they develop together, and the differentiation of each arises from the interaction between them.

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[1] Cambridge University Press, 1944.

I think that all that it is necessary to say on this matter here is that it is of course possible to define 'progress' arbitrarily for biology, and that some arbitrary definition might be found useful. But, alternatively, the meaning and the definition of the term 'progress' can be considered in a much wider and more general context, and if from such considerations a definition of 'progress' were arrived at one could then discuss its applicability in the particular biological context. This more general discussion of 'progress' and its criteria will be one of the points dealt with in the two following chapters.

The fundamental mechanism of evolution is heredity operating through reproduction—a distinctive characteristic of organisms as compared with inorganic matter—and selection. Heredity ensures biological continuity in the process of evolution, while selection determines the nature of the trend taken by the process. There is more than one kind of selection, but it will be sufficient to consider here the best known, and in some ways the most important—namely, what is commonly called 'natural' selection.

Natural selection consists in the fact that, owing to the differential effects of the environment in relation to various organisms, certain characteristics of the latter are more favourable than others to the survival of an organic species, and it must always be remembered that an important part of the environment of an organism is other organisms. Hence certain kinds of organism tend to die out, while others tend to go on and develop. This is natural selection.

An interesting point arises here. According to the generally accepted theory of heredity, the material which conveys the characteristics of parents to their offspring—the 'germ-plasm,' as it is called—remains unchanged during the life of the parents, and in transmission. It is also generally held now, though after long controversy, that characteristics acquired by a parent during lifetime are not transmitted.

Now it is clear that transmission of this kind by means of an unchanging germ-plasm could not result in evolutionary development with change and increasing differentiation. Hence the symbolism has had to be extended by the inclusion of what are called 'mutations' in the germ-plasm. These are occasional, and so far inexplicable, changes which occur in the germ-plasm from time to time, and form the basis of evolutionary development.

All this is reminiscent of Eddington's paraphrase of Newton's first law of motion: "A material body remains in its state of rest or of uniform motion in a straight line, except in so far as it doesn't." The germ-plasm remains unchanged in the transmission of characters from parent to offspring except in so far as it doesn't. We need not, however, be unduly perturbed by this, for, like Newton's first law, it is just another example of that inevitable circularity of 'true' symbolism to which I have already referred on more than one occasion, and which does not in itself detract from the consistency and effectiveness of the symbolism. Generally speaking, this circularity may only be apparent when a wide field of symbolism is viewed, but it is sometimes obvious, as here, in a relatively narrow context. Another example of it occurs in connexion with evolution. This is seen in the stating of the principle of natural selection as the principle of the 'survival of the fittest.' It is said that only those survive who are 'fit' to do so—that is, who are able to adjust themselves sufficiently to the environment. But what is the criterion of this fitness and ability?

Evidently it is, and can only be, whether survival does in fact occur. Hence the circularity; nevertheless, the symbolism of the principle of the survival of the fittest, taken in conjunction with other biological symbolism, is effective in evoking responses useful for dealing with certain types of experiential situation.

The symbolism which has emerged in situations involving heredity includes 'chromosomes' and 'genes' as the elementary factors in hereditary transmission and 'dominant' and 'recessive' traits distinguished in the manner of their occurrence in successive generations. Since the character of an individual is determined by largely uncorrelated influences deriving from an indefinitely long line of ancestors the 'laws' of heredity conform to probability principles applied to the combinations of the transmitting factors.

The biological symbols just mentioned are analogous to some of the symbols—especially, perhaps, the 'particle' symbols—of fundamental physics, and equally there is no warrant for their hypostatization; but they provide a remarkably effective and comprehensive symbolism for dealing with experience in the biological field.

Reference to the Past

The discussion of evolution brings out in the clearest manner the reference in biology to the past, and this we must now consider, since the fact that temporal symbolism is essentially involved in its symbol system distinguishes biology fundamentally from a science such, for example, as chemistry.

I would first draw attention to the general remarks about time and temporal symbolism which I made in the epistemological context in Chapter II,[1] for these apply with special force in the biological field. But in view of the way in which temporal symbolism pervades our thought, as apparent in symbol systems covering many different fields of theory and practice, the problems which it raises are in the end metaphysical—at any rate, 'metaphysical' as I shall later define that term—and will be considered in the chapter on metaphysics.

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[1] See pp. 113 ff.

So far as biology is concerned, it should be pointed out that all the data necessarily derive from experience—the experience of the individual student of biology—and experience is essentially characterized by 'presentness.' The observations of the biologist include such things as fossilized remains, and also written material in the form of records, notes made by others on their observations, and biological text-books. Temporal symbolism is necessary for the construction from the mass of biological data of a symbol system which shall be consistent and effective, and at the same time as simple as possible. Nevertheless, the fact remains that all the data occur in experiential situations—that is, in what is present—the meanings of the terms in the symbolism emerge in such situations, and the symbolism is applied in such situations—that is, it evokes appropriate responses for dealing with them. A statement containing a reference to the past is verifiable, if at all, only in experience—namely, in what is present.

If follows, as a particular instance of the non-validity of the hypostatization of symbols, that we must not regard the temporal symbolism of biology as 'indicating,' or 'corresponding to,' actual entities 'existing' in some equally 'existent' non-experienced realm labelled 'the past.' For example, although we can *define* the terms in such a sentence as "The icthyosaurus existed in the Cretaceous Age" by linking them up with other symbols in the biological symbol system the *meaning* of the terms derives entirely from what is present. Hence biological symbolism is just a useful instrument for co-ordinating data which are present in experiential situations and for evoking appropriate responses in other experiential situations—that is, again in what is present; it is not something conveying concretely the nature of an 'existent' reality which is 'past.'

The point under consideration is a difficult one, since temporal symbolism is so ingrained in the pattern of our life, but I do not think I can profitably say any more about it here. I should like, however, to make a brief digression to remark on a similar consideration which arises in connexion with 'history.'

History, like biology, involves an essential reference to the past. For the individual historian—indeed, for any person who is considering the field of history—the data of observation consist in written and other 'records' of various kinds, 'historical remains,' and, to a certain extent so far as 'recent' history is concerned, his own memory-images. All these data occur in the experience of the historian, and what I have said in connexion with biology applies equally here; the data occur in what is present, and the symbol system emerging from them is applied in what is present.

We might perhaps answer the question "What is history?" in one or both of two ways. We might say that history is a body of knowledge consisting of a symbol system which is self-consistent and effective in dealing with present situations involving what we call 'historical' material. A completely self-consistent symbol system has not yet been evolved, for historians are by no means always in agreement. On the other hand, we might say that history consists in imaginative constructions derived from present data which, as might be said, we 'project into the past.' Here *meaning* will be involved, especially in relation to personal experiences which we transfer in imagination to the experiences of people who, as is commonly said, 'existed in the past.' It is clear that the possibilities of difference and uncertainty in interpretation here are endless, and it is perhaps this fact which gives whatever force it may have to the statement of Henry Ford that "History is bunk." In any case, it underlines the point that in history, as in biology, all that we really have is a symbol system which we try to make consistent and as effective as possible in its application to situations which are essentially present. Any attempt to hypostatize our symbolism as conveying concretely the nature of clear and definite entities and processes which are 'existent' and 'past' is unjustified. The questions at issue are similar in some respects to those which arise in connexion with what is involved in statements and beliefs about the 'existence of other beings.' Historical statements, like any other statements, arise in present experiential situations, and must be interpreted and applied in present situations, from which they derive their *meaning*. There is no warrant for—or, indeed, significance in—supposing them to convey anything from outside these situations, and any imagery—itself present—which is associated with them is just what it is and nothing else. But, as I remarked earlier, the matter can be carried further only when we enter the metaphysical field.

Conclusion

In considering the biological field I have confined myself to a relatively brief statement, for I think no more is required to illustrate the application of my general theory of knowledge to biology. But one further point should be mentioned. I spoke at the beginning of this chapter of the use of teleological symbolism in the attribution of 'purpose' to the behaviour of individual organisms. There is, however, the wider question as to whether there enters into the whole pattern of Nature the operation of a purpose of cosmological extent—but this again is so general in its implications as to fall within the field of metaphysics.

CHAPTER VI

Ethics, Morals, and Value

THE terms 'ethics' and 'morals' are used by different people with somewhat varying shades of meaning. In my usage ethics is concerned with principles determining the conduct of human beings and morals is concerned with codes of conduct based on those principles; the two therefore form complementary and interwoven parts of one study, and in the section that follows I shall not treat them separately, but shall consider them for the most part together.

The topics dealt with in this chapter will be approached in a different manner from those discussed in the preceding three chapters. In those chapters I was concerned mainly to show how the symbolism associated with the investigation of certain fields of experience illustrated and confirmed the general theory of knowlege, and, in particular, the view of the nature of symbolism, which I had put forward, and to indicate the conclusions which followed in regard to the fields of experience in question. But I may perhaps now claim to have done enough in the way of illustration and confirmation of my general thesis, and I will therefore consider the nature of the symbol systems associated with the fields of morals, ethics, and value, and the responses which these systems evoke from human beings, as subjects of study in themselves.

I have mentioned one reason for this change of approach, but there is another and more important reason. In the fields of physics, psychology, and biology, while there is disagreement on some matters of detail and on some borderline problems, there is nevertheless a considerable measure of agreement over a wide area of the field among those concerned with the study of the subject. But the case is far otherwise in regard to ethics and morals. Here disagreement is widespread and long-standing, and it involves not only matters of detail but the most fundamental general principles.

I believe that the reason for this confusion and bewilderment in the ethical field is that the various symbol systems which have developed in this field—and which have determined the nature of human conduct through the behaviour responses which they evoke—are inconsistent—inconsistent in themselves and inconsistent in their relations to symbol systems in other fields which also profoundly influence human behaviour. The result has been twofold. First, the patent confusion in the philosophy of ethics to which I have already referred. Secondly, the endless conflict and misery—to which all history bears witness—resulting from the different methods of approach of different people and of different groups and communities of people to the problems of human conduct, and from the attempts of some groups to impose on others codes of conduct and corresponding modes of general life organization. These codes are always derived from the ethical and, inevitably, religious symbol systems which the imposers happen to have developed, and which, at any rate in theory, determine their own conduct. Here I should remark that in what I have just said I do not mean to imply at this stage any particular order of priority, or any particular relationship, as between ethics and religion. In this chapter I am concerned with ethics, though incidental references to religious implications will of course be necessary; but the full consideration of the relation between ethics and religion—and, indeed, the whole question of religious symbol systems—falls to be considered under metaphysics.

In view of the position regarding ethics which I have outlined, I shall not begin with a discussion of current and traditional ethical systems. On the contrary, I shall first set out an ethical symbol system which seems to me personally to be intelligible, consistent, and satisfying. I shall next consider the conclusions to be drawn from this in regard to conduct, and discuss certain criticisms which might be urged against my position. I shall then deal with other systems, and try to show the ways in which they seem to me to fail. I call the system which I advocate 'ethical eutonism.'

Ethical Eutonism

I have already explained my usage of the term 'eutonism' in the chapter on psychology,[1] and I will therefore only recapitulate briefly here. Every experience or experiential situation of any individual is permeated by what is called 'feeling-tone.' Feeling-tone is eutonic or dystonic. Somewhat rarely it may be very nearly neutral as between these two possibilities, which are exhaustive. They are also exclusive, though any given situation may of course include both eutonic and dystonic elements. Eutony is the general term associated with such terms as pleasure, joy, contentment, satisfaction, harmony, and so on. Dystony is the general term associated with such terms as pain, misery, discontent, frustration, and conflict.

I have said that the terms 'eutony' and 'dystony' are exhaustive. By this I mean that, whatever novel types of experience may be in store for the individual, either in this life —such, for example, as so-called 'mystical' experience—or in some possible future life—such, for example, as the 'bliss' of a heaven or the 'torment' of a hell—will be either eutonic or dystonic; there is no third category. I have sometimes heard it stated that in a future life there may be superlative forms of experience to which such terms as 'eutonic' and 'dystonic' are not applicable. But, on being pressed, those who make such statements can give them meaning and substance only in terms of eutony, or are compelled to leave them devoid of meaning.

The thesis of ethical eutonism is that the only significant and intelligible aim of the activity of an individual human being is the attainment of experience, as stable and durable as possible, characterized by the maximum possible eutony and the minimum possible dystony. By the statement that this is the only "significant and intelligible" aim I mean that the thesis of ethical eutonism is the only symbolism in the ethical field which is self-consistent and consistent with the generally accepted symbolisms of other fields.

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[1] See pp. 194 ff.

A number of points call for comment. The aim of individual human conduct and behaviour may be short-term or long-term. If short-term it will generally consist of responses directed to the immediate attainment of eutony. If long-term the individual, often after rational consideration, may deliberately accept a temporary measure of dystony—sometimes perhaps intense—in the belief that it will ultimately lead to a maximizing of eutony and a minimizing of dystony. The means adopted may be—and often are—mistaken, when there will be failure to achieve the desired end. There is, and has always been, much unnecessary misery and unhappiness in the world, and only the growth of wisdom can cure this.

At the level of non-reflective behaviour, both of non-human organisms and of very young human beings or of older people acting in immediate response to the stimulus of the experiential situation, the behaviour is directed to the attainment of eutony, as I pointed out in Chapter IV. It was for this reason that I said there that I was not concerned to draw a distinction between 'psychological' and 'ethical' eutonism. Not only is the attainment of eutony the only significant and intelligible aim of behaviour and conduct; it is the end to which the latter is in fact always directed, though the means adopted may be mistaken, and therefore fail.

All human conduct, unless restrained by fear or by sheer physical restrictions or compulsions, is directed to what is described by the individuals concerned by such terms as 'desirable,' 'satisfying,' or 'fulfilling.' The very meanings and definitions of these terms are bound up with the meanings and definitions involved in the symbolism of eutonism; and even in the case of restraint by fear or physical compulsion the individual endeavours to adjust himself so as to secure the maximum of eutony and the minimum of dystony which the conditions allow. We have here, indeed, another example of that kind of circularity in symbolism which is the mark of self-consistency and truth. The traditional systems of ethics and morals break this circularity by bringing in extraneous factors which are in this context non-significant, and it is on this rock that they founder, as I hope later to show. But eutonism, for those reasons among others which I have just given, carries its intelligibility and justification with it.

Eutonism is based on experience, and we do in fact know a great deal through experience about the kinds of situation which produce eutony and about those which produce dystony; and we shall gain, and should seek, further knowledge through experience and experiment. It is only from these sources that we can achieve wisdom in the quest for eutonic experience.

One thing we learn as an actual hard fact of experience is that if we seek our own happiness by means which ignore or militate against the happiness of others we shall fail in our aim. Our lives are so closely linked, and our nature is such, that the eutonic experience of each is bound up with that of all. This is true not only at the lowest level, where if we ignore the well-being of others their reaction may be such as to injure ourselves, but at all levels of the mental and physical relationships of human beings. All the evidence, both of our own mental experience and of our observations of other people, indicates that the selfish man, though he may from time to time achieve transitory pleasure, is not a happy man; the signs of conflict and anxiety are only too clear. The antithesis between egoism and altruism is therefore a false one; remembering that by 'egoism' I mean here, not crude selfishness, but the rational and deliberate quest for one's own eutony as an end in itself. Both egoism and altruism are ends, and each is a means to the other.

That egoism and altruism are complementary and not antithetic is not only a fact of experience; consistency requires it. For if the altruist regards the happiness and well-being of others as an end in itself, he must logically also regard his own happiness and well-being as an end in itself to be deliberately pursued, partly through the satisfaction derived from serving the interests of others.

Objections to egoism as an intelligible and appropriate philosophy of life are not indeed usually based on reason and logic but on a sense of 'disapproval' deriving from long tradition and moral conditioning of a certain kind. It is true, of course, that crude selfishness is not only unpleasant for others but also a stupid and ineffective way of achieving that sense of happiness and well-being which is an integral part of a stable and durable state of eutony. But philosophical egoism is very different from crude selfishness; it is justified both by reason and by experience, and, as I have pointed out, it implies and is implied by altruism.

Another type of objection sometimes urged against theories such as ethical eutonism and its associated egoism is based on extreme cases such as that of the 'martyr' or the man who sacrifices his life for another. But such objections lose their force when it is remembered that egoism is not a philosophy directed to eutony derived from particular experiential situations considered in themselves, but a forward-looking way of life chosen by the individual because it will give him—or because he thinks it will give him—that satisfaction and fulfilment which is an essential element in the attainment of a durable condition of maximum eutony in his experience. Neither the conduct of the martyr nor that of the man who sacrifices himself without premeditation is the result of a momentary impulse. It springs from a whole pattern of life and thought, moulded on a way of living which is accepted by the individual concerned as that in which he believes he will find in the end the fullest satisfaction according to his nature—and such an aim is essentially eutonic, though various words may be used to describe it. It is this which distinguishes the conduct of rational human beings from the behaviour-responses of animals and beings at a low level of development; many of these responses are immediate and *ad hoc* according to the situation, and are determined by the principle of psychological eutonism.

I have said that egoism is a rational and deliberately chosen philosophy of life. Nevertheless, the continuous and conscious pursuit of eutony defeats its own end. This again is a fact of experience. Experience shows that one of the most effective ways of attaining eutony for ourselves lies in 'losing' ourselves in the service of others. But we can hardly suppose that we would seek the happiness and well-being of others if this invariably led to pain or misery for ourselves, nor could we properly be urged to do so in such circumstances. It is doubtful, however, whether a symbol system applicable to a universe containing such beings as ourselves could be devised if egoism and altruism were fundamentally antithetical; or, to put it in more ordinary language, such a universe can hardly be supposed to be possible.

On the other hand, the world being what it is, it may on occasion be necessary to accept a certain measure of dystony in order to attain later a fuller measure of eutony—and, indeed, the sense of eutony may be heightened by previous experience of dystony. But I can see no intelligible reason for regarding pain and misery as in any circumstances justified in themselves, and the fact that as things are they sometimes have to be accepted in the interests of future happiness and well-being may perhaps be regarded as a sign of 'imperfection' in the world. But this is a metaphysical question, to be considered as part of the whole 'problem of evil.'

It is sometimes urged against the pursuit of happiness as an intelligible ultimate end that 'happiness is only a by-product.' This is little more than a parrot-cry, for although eutony is not an experience in itself but a characteristic of certain experiential situations, it is just this characteristic which makes intelligible the attempt to establish such situations. Behaviour and conduct are meaningless apart from considerations of eutony and dystony, but I shall consider this point further when discussing those systems—and they are, and have always been, common—which hold the ultimate aim of conduct to be related to some 'external' standard, such as the 'will of God' or the 'moral law.'

I call the process of attempting to maximize eutony and minimize dystony in experience 'adjustment.' This is a definition, but it is, I think, sufficiently congruous with the common usage of the term to be rendered appropriate.

Another term calling for definition in this context is 'progress.' I should say that progress is occurring in an individual or a community when, taken overall, eutony is increasing and dystony diminishing. It is of course impossible to apply precise quantification here; nevertheless, the difference between greater and less happiness and well-being and between greater and less misery and pain have experiential meaning for us. There remains, however, the difficulty of determining a criterion of progress, seeing that it is very difficult, and often impossible, to assess the eutony and dystony of the individuals of a community, particularly with regard to past ages. I have considered this point in some detail elsewhere,[1] and all I will say here about it is that the conclusion I have reached is that the only criterion of progress which is at all practicable, in that it is to some extent open to observation, is increase in the measure of agreement among individuals composing a community—in the end the whole world—as to what are the most effective principles of conduct in achieving the maximizing of eutony and the minimizing of dystony. Agreement on conduct is susceptible of observation; and I cannot believe that more and more people would agree to an increasing extent on ways of conduct which invariably led to an increase in pain and misery and a decrease in happiness and well-being instead of the reverse.

It will be clear that what I have said in the present context is reminiscent in some ways both of ethical hedonism and of the Bentham type of 'utilitarianism'; but these two theories seem to me to suffer from difficulties due to serious limitation of scope, the one through undue preoccupation with the idea of 'pleasure,' the other through undue insistence on the material conditions and amenities of life. Nevertheless, I regard my own statement of ethical eutonism as in a certain sense a development of these older theories, while at the same time I believe it to be free from most of the objections to which the latter are open.

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[1] See *Happiness, Freedom, and God*, pp. 31 *ff*.

Such words as 'duty' and 'obligation,' in their customary usage in ethical discussion, have no place in the symbol system of ethical eutonism. They imply an external demand or sanction of some kind or another. But ethical eutonism does not assert that there is a 'duty' or 'obligation' laid on the individual to act in such a way as to promote maximum eutony for himself and others. It simply asserts that such an aim is the only intelligible end of human conduct, and that, psychologically, it is the end which all in fact are pursuing, whether by effective means, which is the path of wisdom, or by ineffective and self-stultifying means, which is the path of ignorance or folly. As I have already said, it is only by such a principle that an ethical symbol system can be made self-consistent and consistent with the symbol systems arising from other aspects of experience. Moreover, difficulties arise over such words as 'duty' and 'obligation' in connexion with the problems of 'freedom' and 'moral responsibility' and these we shall have to consider shortly.

There is, however, a social, as distinct from a moral, sense in which duty and obligation are appropriate terms which is perfectly consistent with ethical eutonism. Human beings live in communities, and the eutonic experience of the individual considered in himself is indissolubly involved in his experience as a member of a community. The conduct of every person is therefore of prime concern to his fellows, and the community lays down principles of conduct for the protection of its members from the results of anti-social conduct by particular individuals. Such conduct is 'anti-social' because it promotes dystony and diminishes eutony, not only for others but also —except perhaps immediately in a transitory situation—for the anti-social individual himself. The sanctions, external to the individual, imposed by the community in such circumstances are justified, not by 'morals,' but by the eutonic principle itself.

When the ethical eutonist says that a man 'should' or 'ought to' behave in such and such a way in a given situation he means simply that that is the way which, in his judgment, is likely to lead to the greatest amount of eutony for all concerned which the circumstances allow; he does not mean that there is a 'moral' sanction, arising from a source external to the individual, which lays on him an obligation to behave in such a way. The eutonist is therefore using the terms 'ought' or 'should' in the manner in which we say, for example, that in order to solve a certain problem one 'should' or 'ought to' proceed in such and such a way.

Similar considerations apply to the use of the terms 'good' and 'right.' Strictly the eutonist would not use these terms at all, for their usage is bound up with traditional ethics. But for convenience he might use them without too much incongruity, as analogues in circumstances in which they would ordinarily be used. He would, however, employ them in a comparative sense. Thus for the eutonist the *degree* of 'goodness' or 'rightness' of an action would be the degree of its approximation to the promoting of the maximum amount of eutony which the situation made possible, while the degree of 'goodness' of an individual would be the degree to which, generally speaking, the results of his actions approached the production of the maximum eutony which the circumstances permitted, due allowance being made for any obstructive influence by factors over which he had no control. The eutonist would thus be making *factual* judgments, often involving considerations of balance, and not 'moral' judgments as commonly understood.

I am aware that much argument has centred round such questions as to whether the 'goodness' or 'rightness' of actions and individuals should be assessed by motives or by consequences. I confess that these discussions seem to me to be largely sterile, depending simply on usage of terms. Some actions are performed from motives which arouse feelings of approval; some actions result in consequences which are regarded as desirable. Some, but by no means all, of the actions of the first class are identical with actions of the second class. Those are the facts, and whether we use the same term or different terms for actions comprised in the two classes is a matter of agreement on usage.

Views such as I have expressed in regard to terms like 'duty,' 'obligation,' 'rightness,' and 'goodness,' are apt to evoke from critics expressions of somewhat shocked disapproval. This is understandable in view of the history of the terms in question and of the position they hold, both in everyday discourse and in ethical philosophy. But I do not think the disapproval is justified. It arises, perhaps, from a fear that the abandonment of these traditional ethical symbols—or at any rate, a drastic change in their usage—would lead to most unfortunate consequences, and to a debased view of human nature. I believe such a fear to be without foundation. On the contrary, as I shall try to show in my last chapter, ethical eutonism leads to principles of conduct which are in accord with what we consider to be the highest standards of civilization, and in particular the Christian ethic, and individuals of a community who lived in accordance with the principles would be happy in themselves and harmonious in their relations with their fellows—and this is, in the end, the only intelligible and self-justifying criterion.

It will be seen that many of the points I have been discussing raise questions as to the nature of 'value' in general, and these I will consider in a later section. But we have still in the ethical field to deal with the problems of freedom and moral responsibility, and afterwards to review current and traditional schools of ethical philosophy in the light of the conclusions reached.

Freedom and Moral Responsibility

The problem of 'freedom' has always appeared to involve particular difficulties for philosophers, though it turns very largely on the usage of terms. I do not think that the difficulty is inherent in the problem itself. The frequency with which philosophers return to this question, and the inconclusiveness of their arguments about it, seems to me to be due to emotional —or at any rate, non-rational—factors. But I will leave that point for the moment; what we have to consider now is how the term 'freedom' can be fitted congruously and consistently into our ethical and general symbol systems in regard to its interrelations with the other terms included in those systems.

We use the term 'freedom' in the context of human conduct in connexion with the 'actions' of an 'agent.' These 'actions' are the responses of a human individual—the 'agent'—in the various experiential situations in which he is an integral component. The matter can be considered from two angles—namely, that of the individual himself, and that of an 'observer' who perceives the behaviour of other people. I will begin with the second.

The question is perhaps approached most simply in terms of the contrary concept to that of 'freedom'—that is, 'determinism.' How far, and in what sense, are the responses of the agent 'determined'? We may rule out at once the possibility —or rather, impossibility—that the agent's responses are in any circumstances determined by nothing at all. It may seem unnecessary to say this; nevertheless views have been held—sometimes by philosophers of repute—which really imply this kind of 'indeterminism.' Yet not only would the responses in question be quite irrelevant to, and inappropriate in, the given situation—for, *ex hypothesi*, they are not determined by anything—but a realm of existence in which such things were continually occurring would be not a world but chaos—which is another way of saying that a contradiction is here involved, or, more strictly, that it would be impossible to frame a self-consistent symbol system to cover a state of affairs such as that suggested.

The factors which determine the responses of an agent are then of two types; those arising from the nature of the agent himself and those arising from all other sources—that is, from what may be called, in the broadest sense, the agent's 'environment.' The situations in which the responses occur include both the agent and his environment. The separation between agent and environment is in fact symbolic; sequences of events occur within a monadic experience which we symbolize as the responses of an 'agent' in situations involving such things as thoughts, feelings, urges, motives, mental attitudes, bodily conditions, sights, sounds (including speech and movements of others), and so on. We should, indeed, go even further, and observe and assess the response of an agent on a given occasion in the light of his whole life-situation.

The fact that the separation of agent and environment is symbolic raises no difficulty, for what we are here concerned with is the relationships of symbols. But the point arises as to where exactly the line is to be drawn between agent and environment; for example, should we take a purely 'psychological' view of the agent and regard his body as part of his environment? As will be seen shortly, however, the point is not of any consequence in the present context, but it serves to emphasize what has been implied in another sense in the foregoing—namely, the fact that 'freedom' and 'determinism' are *relative* terms.

I have not yet tried to define these terms. Let us suppose that an agent *X* is characterized by certain factors—'attributes,' 'conditions,' call them what you will—lumped together as *A*—that is, that in our symbol system *X* is defined as a certain complex, *A*, of interrelated symbols of a kind associated with the symbol 'human agent.' Then the symbols arising in the 'description' of the responses of *X* and their consequences will in general involve both *A*-symbols and other symbols—*B*-symbols—arising from the environmental aspects of the situation.

In this case I should say that the responses of X are 'free' *to the extent* that A-symbols are here involved, and 'determined' to the extent that B-symbols are involved; or, in more ordinary language, X is free to the extent that his responses are determined by A-factors, and determined to the extent that his responses are determined by B-factors. Note that the definition of 'free' in ordinary language involves the word 'determined,' so that the relative nature of 'free' and 'determined' becomes clearly apparent. Nevertheless, I suggest that this usage of 'free' is intelligible, not incongruous, and capable of being fitted into ethical and general symbol systems without inconsistency.

We come here to the crux of the matter, for, since we begin our earthly existence with natures for which we are not in any sense responsible, and since our initial environment is beyond our control, and the subsequent changes in it result from responses springing primarily from our inborn nature, the initial environment, and other environmental factors also outside our control, it follows that the 'moral responsibility' of the individual looks like losing all its significance. I have no doubt that it is the non-rational dislike of such a conclusion which has impelled philosophers to try all kinds of bizarre methods of defining the word 'free' in ways other than those that I have given.

Before carrying this point further, let us now consider for a moment the question of 'freedom' from the angle of the individual agent himself. Is there anything in our experience of our own agency which is inconsistent with the view of 'freedom' which I have stated? We are aware of what we call 'limitations' and 'restrictions' and 'hindrances' on our activity as elements in what we call 'interaction' between 'self' and 'environment,' and some of these limitations are man-made. To this extent our activity is determined by the environment; but within the bounds thus imposed there is general scope for variety and flexibility in our responses, and our 'choice' of response is the expression of our own nature, and it is from our exercise of it that our sense of 'freedom' springs. But there is nothing in our experience of volition, or choice—with, on occasion, its deliberate weighing up of the issues involved and its determination by 'motives'—which could lend colour to the supposition that anything in our actions is altogether undetermined. Everything we do is determined jointly by our own nature and by factors external to that nature, however the latter be defined and circumscribed. This is to be expected if I am right in what I have said about the impossibility of indeterminism.

Nevertheless, attempts have been made to escape this conclusion. 'Free will' has been defined, for example, in such terms as a creative, *de novo* act, embodying the result of impartial, rational deliberation. But clearly 'impartial' begs the question, while 'rationality' is not inconsistent with determinism; moreover, a 'creative' act is either a *consequence* of rational deliberation—and therefore not *de novo*—or is quite unrelated to anything else, in which case it would not only be an impossibility but—even if such could be contemplated—altogether incongruous with 'moral responsibility.' Bergson—an important advocate of this kind of view—held that determinism is a result of artificial abstraction leading to the equating of 'wholes' to the sum of their 'parts,' whereas an individual is an indivisible dynamic unity whose activity is 'free' or 'creative.' But again, what is meant here by 'free'? We cannot escape the inevitable conclusion in a cloud of words. The whole argument is an attempt to reach a consistent and non-contradictory usage of symbols. I believe that a view such as I have suggested achieves this, while the 'indeterminist' type of view patently fails to do so. Moreover, my conclusions do not lead to consequences from which we need shrink at all—though this consideration is in any case emotional and not rational.

The fact is that the indeterminist argument is another example of the fallacy of pseudo-transcendence, for it attempts in effect to view the individual as an integral component of the situation in which the activity occurs (it cannot avoid this) and yet at one and the same time somehow able to influence that situation from the outside. The individual thus, as it were, transcends his own nature, and his actions are not completely determined by it. The whole thing is a mass of contradictions.

I have spoken earlier of being free—and determined—'to a certain extent,' or a certain degree. This degree is of course not in general specifiable in precise quantitative terms; nevertheless, quantitative specification is possible in some types of situation, which may help to illustrate the principle involved. Thus in certain psychological and biological experiments it is possible to express quantitatively both the responses of the individual and also those factors in his own nature, and in the environment, which influence these responses. In this case the individual will be 'free' (*i.e.*, self-determined) and 'determined' in the relative proportions of the variances of the individual and environmental factors, which together account for the response-variance. Alternatively, we might say that the lack of correlation—as measured by the 'coefficient of alienation'—of the actions of X with given environmental factors Y is a measure of the 'freedom' of X relative to Y.

It might be said that if all is determined in the way I have suggested it is useless to take any thought for our own actions, for life is denuded of all meaning. But this is an inverted form of the fallacy of pseudo-transcendence. The salient fact is that our arguments about free will and determinism necessarily take place within the very situations with which they are concerned. Philosophers are within reality, and in philosophizing they cannot escape from reality and view it from 'outside.' In fact, the kind of determinism which I have been suggesting does not really amount to more than the assertion that things are what they are, whereas the indeterminist view is in the end an attempt to ignore this. But it remains true that the actions of an individual influence the environment, including other individuals; and among these actions argument and persuasion are included. This is not in any way inconsistent with my form of determinism, but it shows that the latter provides no warrant for *laisser-faire* or 'fatalism.' We cannot escape from ourselves, but we ourselves are nevertheless potent factors in the world. We are part of reality; determinism accepts this, but is in no way inconsistent in accepting our influence on processes within reality. Indeterminism attempts to get outside reality, even though it does it blindly.

The bearing of all this on the question of 'moral responsibility' is vital. The word 'responsibility' is used in various ways. Sometimes it is used as a rather emphatic way of indicating mere agency, without adding anything to the meaning of the latter. Thus one might say, for example, "Who is responsible for doing this?" which is simply a more portentious way of saying "Who did this?" Sometimes the reference is less direct, and a causal relation is involved. Thus if some action by *A* is the prime cause of a certain action by *B* we might say that *A*'s action was 'responsible for' *B*'s action. Evidently if we followed this usage to its logical conclusion we should be led to a regress which could only end in a description of the whole universe in terms of causality, the 'responsibility' finally devolving upon anything regarded as an ultimate 'prime cause.' This second usage of 'responsibility' is important here, especially as it implies that if responsibility is to carry meaning additional to that of mere agency it must have a reference beyond the specific situation in regard to which it is used. There is, of course, a third and slightly different usage in which we speak of making a person 'responsible' for carrying out certain activities, but this usage evidently derives directly from the other two.

Up to this point there is no 'moral' implication involved in the usage of the term. We might say that 'moral responsibility' is responsibility, in the senses already considered, associated with a particular type of action—namely, those to which 'moral' or 'ethical' principles are relevant—but I think it will be clear that when the phrase 'moral responsibility' is used more is involved than a mere naming of this kind. After the fullest consideration, it seems to me that the *essential* element in the general usage of 'moral responsibility' is that when a person is said to be 'morally' responsible it is held that there is an ultimate or absolute sense in which he can be appropriately regarded as to be 'blamed'—or to be 'praised'—for his actions. Here as always it is a matter of the interrelation of terms as they are used, and here this is especially important for human beings because of the nature of the responses evoked by the terms in question.

Now, I believe that in the general usage of such terms as 'blame' and 'praise' in relation to 'responsibility' there is a contradiction which renders the common and traditional usage of 'moral responsibility' devoid of significance. For in making a moral judgment on the behaviour of an individual on a specific occasion we cannot properly have regard to that occasion alone, either on logical or any other grounds, but must look at the life of the individual concerned as a whole. But if we take his life-situation as a whole—and if I was right in saying that the word 'responsibility,' as generally used, carries a reference beyond the situation which is the occasion of its use—then responsibility for the behaviour of an individual is carried beyond him.

If I may recapitulate briefly what I have already said in other words, using the language of ordinary discourse, one might say that a human being is born with certain attributes which can perhaps be regarded most appropriately as potentialities. It is unlikely that anyone would maintain that the individual is in any sense 'responsible' for these attributes with which he is born. I do not except from this statement those who, believing in the 'transmigration of souls,' hold that behaviour in one life influences character and behaviour in future lives, for this merely carries the argument back a stage. The behaviour of the individual subsequent to birth results from the continuous interaction of his attributes with the environing conditions, conditions for which again he cannot be held responsible. For certainly the initial conditions are beyond his control, and, in so far as later conditions are in some measure due to his agency and his attributes are modified in course of time, the chain of cause and responsibility goes back always to the initial conditions. Hence I cannot see how any significance can be given to the 'moral' responsibility of an individual for his behaviour when this carries with it—as it must if it is to have any substantial and distinctive content—the attribution of blame or praise.

It is true that many people feel what is often described as a sense of 'duty' or 'moral obligation,' but evidently the existence of such a feeling does not affect the argument; and, in any case, there is considerable evidence that the feeling is a consequence of the way in which individuals have been conditioned by various influences operative during the early and formative years of life. In certain cases the effect of such influences is to produce a distorted or exaggerated feeling of responsibility, leading to more or less serious psychical disturbance. In other cases it is clear that the alleged sense of moral obligation is a rationalization to justify actions prompted by motives of a quite different character.

Of course, an individual exercises choice; but what he chooses is determined jointly by his attributes and the external conditions under which the choice is made. And if it be asked whether he could have chosen otherwise, then if regard is had—as it must be had—to the whole situation, including the individual's attributes as well as the external conditions, it is not so much that the answer is negative as that the question becomes meaningless.

Broadly speaking, theories which take a fundamentally different view of moral responsibility from the foregoing fall into two types, according as they associate this responsibility with a so-called 'moral law' or with the 'will of God.' Such theories seem to me hardly to face, let alone refute, the argument which I have been developing; but even if we let this aspect pass, and consider them on their own merits, we can see that they involve serious difficulties.

It is unnecessary to press the point that the hypostatizing of the symbolic phrase 'moral law' is invalid, since the usage of the phrase is in itself clearly redundant. For to say that, in a given situation, a certain action is 'right,' or 'ought' to be done, because there is a 'law' which says it is right, carries us no further; and if it be argued, as it sometimes is, that the moral law is an 'ultimate' which must be accepted the reply is that the inclusion of such an 'ultimate' in a symbol system is justified only if we cannot get on without it, and it is necessary to make the system consistent and effective. I see no reason whatever for believing this; indeed, my whole argument leads to an opposite conclusion.

It follows that to give the 'moral law' substance it has to be linked to some kind of 'sanction.' There the difficulties multiply, for there has been most violent disagreement, first as to whether the sanction is religious or secular, and, even when there is agreement on this point, equally violent dispute as to the exact nature of the sanction, whether religious or secular. History bears eloquent witness to the endless conflict and misery arising from this cause.

The mention of a sanction brings us to the second type of theory, that which links 'moral responsibility' with the 'will of God,' which is in effect the associated sanction. Now, we cannot significantly say that we 'ought' to obey the will of God without characterizing 'God' in some way. But it could hardly be said that we ought to obey God because He is a Being who is extremely powerful; for He might be malevolent and seeking to cause us as much pain and misery as possible. Nor to justify obedience is it enough to add that God must be regarded as benevolent, for He might be ignorant or foolish, so that His injunctions were not to be relied upon. It seems that the minimum necessary condition to justify the statement that we ought to obey God is that God should be regarded as a Being who is benevolent and possessing knowledge far beyond ours, and also—though I doubt if this attribute is strictly necessary here—extremely powerful.

A characterization of God such as I have just suggested makes sense, however, in relation to obedience only if it is linked with the eutonic principle. That is, we should say that a benevolent God, possessing great knowledge, should be obeyed because if we follow His injunctions we shall attain a state of eutonic experience. This is an intelligible criterion, and, I suggest, the only intelligible criterion, for it is clear that we cannot take 'one who should be obeyed' as part of the *definition* of God without begging the whole question of the justification of obedience, and reducing the argument to triviality.

But if we justify obedience in this way the 'ought' has, not a moral connotation, but the meaning which I discussed when considering the eutonic principle. For, as I then pointed out, we rely on experience itself, including experiment, to determine the most effective ways of attaining eutony, and if a God such as I have characterized exists—and this is a metaphysical and not an ethical question—His revelation to us through various channels is one type of experience which helps to guide us in the attainment of eutony. To say that we 'ought' to obey God then means that, as a *fact*, obedience to God is an effective means of attaining eutony; but no question of 'duty' or 'obligation' is involved.

We can, of course, define the words 'duty' and 'obligation' in relation to principles of conduct imposed on us by external authority and backed up by physical or other sanctions; but obedience will then result from actual constraint, satisfaction with or desire for the eutonic results of obedience, or fear of the dystonic consequences of disobedience. This definition of 'duty' and 'obligation' is intelligible and not incongruous, but it has no *moral* associations.

It is sometimes held that, although we may not be able to justify obedience to God by reasoning in verbal argument, this obedience is an ultimate claim, which is apprehended in experience of a 'religious' or 'mystical' type. But if we once commit ourselves to *words*, in statements such as "We ought to obey God" we should be prepared to thrash the matter out in *words*, in order to see whether our general usage of words over their whole field is consistent and free from contradiction. If we are not prepared to do this we should remain dumb on the matter. When difficulties and contradictions in our symbol usage begin to be apparent we cannot avoid the issue by taking refuge in an appeal to non-symbolic experience of a particular kind.

It is interesting to note how the great religions, including Christianity, base themselves in the end on the eutonic principle. They hold out prospects of eutonic experience for the individual—the word 'reward' is not infrequently used—in this or a future life. Various terms are employed, such as 'bliss,' 'joy,' 'ecstasy,' and 'blessedness,' but I do not think it can be denied that all these have a eutonic connotation, and, indeed, that without this the ultimate goal of the religious life would lose its significance. The traditional statement of the matter was in terms of 'heaven' and 'hell,' words which are above all associated with the distinction between the eutonic and the dystonic; and although as religious thought has developed the meanings associated with 'heaven' and 'hell' have greatly changed, the root distinction between them remains unchanged in principle. This final appeal to the eutonic principle is, I believe, inevitable, for reasons which will be apparent from my argument.

I would extend the theory which I have called 'ethical eutonism' to cover, not only the eutonic principle itself, but also the views I have expressed on 'freedom' and 'moral responsibility,' for all these aspects are closely related. I would repeat that, although the only intelligible ultimate aim of human activity is the attainment of a state of stable and durable eutonic experience of perhaps indefinite variety, experience itself may well show that the achievement of this end may, in the world as it is, necessitate the acceptance temporarily of a measure of dystony. But activity is directed to minimizing dystony, as quickly and to as great an extent as may be, and to maximizing eutony. We learn through experience of all kinds, including controlled experience in the form of experiment, the most effective ways of achieving this end, and there is no *a priori* reason why so-called 'religious' and 'mystical' experience should not contribute towards this. Many would hold that its contribution is great and vital—but results must speak for themselves.

What, I suggest, is quite indefensible on any ground is the belief that dystonic experience, such as pain and misery, has any justification *in itself*. Such a belief is to be abhorred, and in fact it makes no sense; nevertheless, although it is meaningless, because it has sometimes been held it has led to the direst consequences. If it be a fact that, with things as they are, some degree of pain and misery is one condition of future happiness this is just an unfortunate and, we may hope, transitory feature of the world. I will discuss this question further in the next chapter, in connexion with the 'problem of evil.'

Ethical eutonism makes no assumptions as to the possible existence and nature of 'God,' nor as to the possibility of a 'future' life. These are questions to be considered under metaphysics, and not ethics. For the same reason, ethical eutonism does not in itself claim to say whether ultimate attainment of enduring eutony is to be looked for in this or in a future life.

One important consequence of the views I have been putting forward is that our judgments of people to be appropriate should be factual and not moral—that is, 'moral' in the sense that we can properly regard others as in the end to be 'blamed' or 'censured' for their actions. The important and significant thing is to know how and why people come to be what they are and to act as they do, and to consider what is to be done about it. We may—and naturally will—often *dislike* other people and their actions, and appropriately take account of their characteristics in our dealings with them, but this is very different from passing a moral judgment of *blame* on them. I will, however, pursue this point further in my last chapter.

Criticisms of Ethical Eutonism

Criticisms of a theory like ethical eutonism may be rational in character—that is, aimed at its self-consistency and consistency with symbol systems in other fields, or at its effectiveness in practice—or they may be non-rational and emotional—that is, arising from a dread of the consequences of adopting such a theory in determining the principles of conduct.

I do not think I need say anything further about the inherent consistency of ethical eutonism, for it has been a main purpose of my argument to exhibit this, neither have I come across any effective refutation of a similar type of theory which would apply to ethical eutonism as I have stated it. Indeed, the usual criticisms of hedonistic and utilitarian theories seem to me to be valid only in relation to the limitations of those theories. In attacking their general principle, criticism tends to fall back on 'absolutes,' or 'ultimates'—which are in fact only accepted as absolute or ultimate by certain people, and then not in the end on rational grounds—or on arguments deriving from a non-rational sense of disapproval or fear of consequences. Moreover, ethical theories of other types are riddled with inherent inconsistency, and inconsistency with symbol systems in other fields, which their exponents accept in common with general usage. I have already referred to this inconsistency, and shall refer to it again. It is of great importance, because contradiction associated with any symbol system which has a vital bearing on human existence, through the responses it evokes, leads inevitably to conflict in personal, group, and inter-group life, with all the miserable consequences which that entails.

As for the practical effectiveness of ethical eutonism, I submit that that theory, more than any other, enables us to 'make sense' of experience, and provides an intelligible and self-justifying criterion in regard to our actual conduct—self-justifying not only because it derives immediately from experience, but also because the criterion is an integral component in the symbol system of ethical eutonism itself. We judge the results of applying principles of conduct determined by the eutonic principle by a criterion which is itself eutonic. It is my contention that, if we think it out, it will be seen that we finally judge the practical results of any ethical system by such a criterion; but contradiction generally arises, since the principles of other ethical systems are in fact themselves opposed to a criterion of this nature. More detailed consideration of practical results leads directly, however, to the non-rational type of criticism.

It is quite commonly held that conduct based on principles which are eutonic in type leads to consequences which would generally be regarded as unfortunate—that is, in effect, consequences involving dystonic experience. If this were indeed so, eutonism would certainly be convicted of contradiction.

We are, however, by no means forced to such a conclusion. Ethical eutonism states that the attainment of eutonic experience by the individual is the only intelligible aim of his activity. It accepts and embodies the fact of experience that the fullest consideration for others plays a necessary part in the achievement of this aim. It therefore follows that the philosophical egoism implied in eutonism is perfectly compatible with, and complementary to, altruism; each necessitates the other. Principles of conduct based on eutonism accordingly require the cultivation in our behaviour of such things as sympathy, helpfulness, tolerance, understanding, kindness, and co-operation. Experience shows conclusively, I submit, both as regards our own feelings and as regards our observation of others, that people who exhibit such qualities are far happier than those who display their opposites; and that communities in which these qualities are widely apparent are far happier than those in which their antitheses are generally the determining factors in conduct. I do not think we need hesitate here to apply the eutonic criterion of 'happiness,' whatever our ethical beliefs. But the qualities I have mentioned are those to which the greatest importance is attributed by what we regard as the highest ethical systems, and, in particular, by the Christian ethic. Nor is the fact of experience that the pain or misery of others sometimes causes us elements of dystonic experience involved in pity, distress, and sympathetic imagination—which we try to remove by striking at their cause—at all incompatible with the eutonic principle.

It should be noted that ethical eutonism does not in any way relieve us of 'responsibility' for our actions, within the limits imposed by 'external' restraints, or therefore of responsibility for the consequences of those actions. Our actions remain our own, and in that sense we are responsible for them; but we are not 'morally' responsible, with all the implications contained in the general usage of that term, as I have tried to show.

The acceptance of any ethical theory is in the end a personal matter. I am a eutonist, not only because I find eutonism intellectually satisfying for the reasons I have given, but also because I find it emotionally satisfying through my own experience, and through the fact that people who exhibit the kind of behaviour which follows from the practice of ethical eutonism, and who deal with their fellows factually and with sympathetic understanding rather than by moralizing and moral censure, are the kind of people I like to live with.

Other Ethical Theories

I have already made several references to traditional ethical theories in comparing them with ethical eutonism, and in considering possible criticisms of the latter, and I do not think I need add much more on the point. One of my main contentions is that eutonism is not only stated in terms of experience but also appeals to experience for its criteria. We do in fact know a good deal, and can continually learn more, about the kind of experiential situations which are eutonic and the kind which are dystonic, and I shall say more about this in my last chapter, where I shall consider the practical applications of ethical eutonism to life. Most other ethical theories, on the other hand, are based on some external 'sanction,' and in regard to their criteria appeal to dogma, authority, or hypothesis. They therefore lack the immediate intelligibility and completeness which characterizes and justifies ethical eutonism. They lead to 'ultimate' symbols which are, as it were, left 'in the air'; or, if attempts are made to interpret them, can be given substance and meaning only in terms of experience—when it can be shown, I think, that they lead back always to the eutonic principle.[1] Accordingly, they develop inconsistencies, which lead to conflict.

There is, however, one contention sometimes put forward which merits a brief examination. It is said that there is a universal sense of the difference between 'right' and 'wrong,' though different people, different communities, and different historical periods vary very greatly in regard to what they actually consider to be right and wrong. What seems not to be realized by the supporters of this view is that we cannot in this case divorce the principle of the argument from its application, and that the fact of the wide measure of disagreement as to what is right and wrong destroys the substance of the argument itself. For what it then comes to is that there is a universal sense of a certain dichotomy in experience, but wide disagreement as to where the dividing-line should be drawn. The ardent Nazi and the devout Christian may be said to have in common the sense of a difference between 'right' and 'wrong,' and, indeed, also to have in common a sense of impelling 'obligation,' but the difference between them is so fundamental that the facts cannot be used to support an argument in favour of transcendent standards disclosed to mankind through a universal sense of the difference between 'right' and 'wrong.' The fact is that this argument is, explicitly or implicitly, generally a plea in favour of some particular standards, and its faultiness then becomes apparent. For example, one writer, in arguing on these lines and then relating his argument to Christianity in comparison with other forms of belief, states: "The history of Europe in the twentieth century discourages the view of T. H. Huxley and other nineteenth-century agnostics that Christian ethical standards will be received and practised when the active belief in the Christian revelation of God has been generally discarded." [1] But he seems to forget that the history of Europe in the twentieth century also makes it abundantly clear that active belief in the Christian revelation of God may be professed while, at the same time and by the same people, Christian ethical standards are ignored or replaced by their opposites.

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[1] See also the next chapter, pp. 265 ff.

I accept as a fact that there is a universal sense of a certain dichotomy in experience in this connexion, but I believe the dichotomy to be that between the eutonic and the dystonic—and although there may be wide disagreement as to the type of conduct most likely to lead to the attainment of eutony, this disagreement is continually tested by experience, and can be resolved to an increasing degree in the light of experience, though the way may be long and difficult. But the reason for conduct resulting in dystony rather than eutony is not a 'moral' one in the traditional sense; it is ignorance or folly. 'Progress' consists in the diminution of this and in the increase of agreement and harmony—themselves characteristics of eutonic experience. Moreover, ethical eutonism is perfectly consistent with, and indeed, involves, standards of conduct, but these standards are not something derived from a transcendental source; they result from experience of those situations which involve, or lead to, eutony and the diminution or avoidance of dystony.

There are two forms of ethical theory which, though they have cropped up in some form or another on various occasions in the past, have been particularly prominent of late. These theories are 'ethical humanism' and 'scientific humanism.' I believe that they have something in common with ethical eutonism, but there are important differences. Ethical humanism involves certain metaphysical restrictions of outlook. It is confined to the present earthly existence of the individual, and, at least by implication, assumes that that is all of which account need be taken. It is a form of altruism which takes insufficient account of the integration of egoism and altruism, and of the fact that these are complementary and not antithetical, which it certainly does not bring out clearly. Ethical eutonism takes full account of the relation between egoism and altruism, and it makes no metaphysical assumptions such as I have mentioned. It may or may not turn out that there are sound reasons for holding certain metaphysical or religious beliefs, while the holding of religious beliefs may perhaps be related to the eutonic principle. But these are matters for later consideration, and cannot in any case affect the validity of eutonism.

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[1] Alan Richardson, in *Christian Apologetics* (Student Christian Movement Press, 1947), p. 129.

Scientific humanism tends to appeal to a biological criterion, and to relate 'progress' to evolution and the development of organic complexity. I have criticized this attitude in the chapter on Biology,[1] and scientific humanism also compares unfavourably with ethical eutonism through this necessity for appealing to a criterion external to itself.

With these remarks I shall conclude the discussion of ethics in particular, and proceed to consider the question of 'value' in general.

Value

Two questions—often confused with one another—recur continually in discussions about value. The first is whether value is 'subjective' or 'objective'; the second is whether value is 'absolute' or 'relative.'

The first question is often put in some such form as this: "Is value a quality characterizing objects in themselves, just as they are characterized, for example, by physical qualities, or is it something arising from the relation of the subject of experience to the object which the subject accordingly attributes to the object?"

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[1] See pp. 216 f.

I do not think there is any substantial significance in this question. It is a consequence of the symbolic separation of 'subject' and 'object' in psychological and certain philosophical symbol systems. This separation, while useful for many purposes, is only symbolic, and it confuses the position in regard to value. The *meaning* of the term 'value,' like the meaning of all other terms, arises from the experiential situations in which the term emerges, and I shall *define* 'value' by the statement that value occurs in experience on the occasion of eutonic experiential situations. I am aware that many would not accept this definition, but I believe that it leads to consistency within the symbol system covering the field of value, and also to consistency of the value symbol system with other symbol systems. I would also maintain that the definition is sufficiently congruous with general usage to justify my usage of the term 'value' in this way. We might, of course, go on to consider which objects of the experiential situations in question give rise to eutony, and to say that these aspects have value, but that is a matter of convenient symbolism and does not affect what I have said about the nature of value.

We may discuss the value-aspects of experience which are the occasion of eutony in connexion with the traditional distinction of three kinds of value—namely, beauty, truth, and goodness. All three characterize eutonic situations, but the types of situation differ from one another. In every case, however, there is one term of all those associated with eutony in general which is perhaps particularly appropriate, and that is 'harmony.'

When beauty occurs in an experiential situation—whether it be in connexion with art, music, or Nature—there is a consciousness of harmony. Two elements seem to be involved in this, if we try to put the matter symbolically in words—namely, harmony between certain related features of the situation, as in the pattern of a picture or a piece of music, and harmony between the percipient and what is perceived. But, whether I am right or wrong in detail in this—and it is a matter for psychological analysis—the principle of the argument is unaffected. Modern psycho-analysis is in fact tending to regard æsthetic perceptiveness and appreciation as closely bound up with the resolution of disharmonies, especially disharmonies 'in the mind' that are generally 'unconscious.'

As regards truth, if I am right in what I said in Chapter II [1] it will be clear that what I there suggested was most appropriately called the 'achievement of truth' fundamentally involves the emergence in experience of symbol systems which are harmonious in themselves—that is, self-consistent and free from incompatibilities—and harmonious in their application to non-symbolic experience. Such harmony is the occasion of eutonic experience, and where it is absent conflict of various kinds results, and gives rise to dystony.

Goodness, in the ethical context, is concerned primarily with conduct, its causes and consequences, and has already been fully discussed in this chapter. Here I will only add that the conclusions arrived at in the discussion showed that in experiential situations the eutony associated with 'good' actions and the conduct of the 'good' individual can appropriately be regarded as involving harmony as one of its most important aspects; both the 'inner' harmony of those concerned and also harmony in their personal relationships with one another and in the relation of their conduct to the general environment, in so far as this affects the conditions of human existence.

Beauty, Truth, and Goodness are, of course, sometimes spoken of—with capital letters—as if they were ultimate 'absolutes' transcending individual experience, but this is a kind of hypostatization which, in accordance with my view of the nature of words and of symbols in general, seems to me to be invalid and without significance. Nevertheless, if it could be shown that the assertion of transcendent values, regarded simply as a symbolic statement, could consistently form part of our symbol systems and add to their effectiveness in experience the assertion would be justified. But it is certain that this has never been shown at all conclusively, and I doubt if it could be, for I believe it leads not to consistency but to contradiction. This, however, brings us to the second of the fundamental questions in regard to value—namely, whether it is relative or absolute.

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[1] See pp. 86 f.

I think it will be seen clearly that when we ask whether there are absolute values the question we are really asking is whether there is an absolute *scale* of value. Actual value-experiences are of various kinds and degrees of intensity, and they are often discussed and compared, and some are said to be 'superior' to others. The question as to whether there is an absolute scale of values is therefore intelligible and significant. On the other hand, if we were to inquire whether there are certain entities subsisting in a 'transcendent' realm which could properly be called 'absolute values,' it does not seem to me that we should be asking anything significant. We could, of course, modify this approach by regarding such entities as a kind of 'maxima' or 'perfections,' to which actual value-experiences approximated more or less closely, but we should then evidently have reduced our question again to the form "Are there absolute scales of value?"

In considering whether there are absolute scales of value it is necessary to look at the matter both in regard to particular individuals and in regard to experience in general—or rather, perhaps, in regard to comparison of the experiences of different individuals. For there is certainly a sense in which value is relative to the individual. Different people have different potentialities or capacities for value-experiences. To take extreme cases, which nevertheless bring out the point quite clearly, there are *some* people who by nature are no more capable of 'appreciating,' or deriving value-experience from, a Beethoven symphony than is, say, a cow; there are others who are quite incapable by nature of appreciating the value-experience of certain trains of abstract intellectual activity—and I would point out that within the range of what would be regarded as biologically and psychologically *normal* variation there are wide differences in the capacities of different people for value-experience in both the æsthetic and the intellectual fields. I would therefore suggest that we might look at the matter somewhat as follows. Either a given individual has potentialities for certain kinds of value-experience or he has not. If not, no question arises in regard to the value-experience *of that particular individual.* But if the potentialities are there, and circumstances are such that they are not fulfilled, there is frustration, conflict, and therefore dystony. The significant question in regard to the individual is therefore how far does he approach complete fulfilment of the capacities for value-experience inherent in him by nature. We have here the basis of a value-scale for the individual—though not of course one in regard to which precise quantification is possible—which, though absolute *for* him, is relative *to* him.

This, however, is not quite the kind of value-scale which people usually have in mind in this context. Generally the further question would be asked as to whether, of all the value-experiences of which a given individual is capable, there is a sense in which some could properly be said to be 'superior' to others. But this raises the second question of a scale of values in relation to experience in general, for, just as we might compare different experiences of a given individual in this way, so we might also compare the experiences of different people.

This question is perhaps most simply approached through a consideration of a particular æsthetic field, such as that of music. If we take the value-experiences arising from music of different kinds how do we in fact arrange these in a rough order of superiority? If we appeal to individual tastes we shall simply find wide differences of order for different people· So far as there is any general consensus of opinion in any defined group of people it is based on an agreement to accept the verdict of particular individuals or types of individual characterized by certain relevant kinds of ability and experience, including 'training.' These individuals are the 'experts' in the field. If we say that the judgment of the experts, so defined, determines the scale of values this is unobjectionable in itself, for we are merely saying how we shall define 'scale of value.'

Such a method of determining a scale of values applies in principle, *mutatis mutandis*, to all the three fields of value, for there are acknowledged experts in all fields. In the various regions of the field of truth—in the main, these are the sciences—the experts indicate those principles, hypotheses, or statements which, on the evidence to date, they consider the most likely to be true, and they may also place others, less certain, in broad categories giving an approximate order, based on their probability as estimated from the available evidence. The criterion applied by the experts for this purpose is the degree of completeness of the harmony and consistency which the consequent symbolism produces within the relevant symbol systems, and in the application of these to non-symbolic experience. In the study of ethics—the field of the 'good'—and the kind of value-situations associated with it, the 'experts' will be such people as professional moralists and ministers of religion.

But there are, of course, difficulties. It is not always easy to determine a group of people who are willing to accept the judgment of the same expert or set of experts. Moreover, different groups of people at various times and places differ widely in regard to the particular experts or kind of experts whose judgment they are prepared to accept. Again, there may be—and often is—considerable divergence of opinion within a given class of experts in a particular community.

These, however, are not difficulties of principle but factual difficulties arising from the nature of things; they leave unaffected the validity of the principle of determining a scale of value which I have been discussing. But what it is important to emphasize is that we are not justified in going beyond this principle and asserting that there are 'transcendent' scales of value laid up in æsthetic, logical, and ethical heavens, still less that the experts have peculiar knowledge of these. Indeed, this assertion, like others of its kind to which I have drawn attention, seems to me to be without significance; however, I shall have occasion to consider the whole matter further and more generally in the chapter on metaphysics which follows. All I have done here is to indicate what seems to me to be the only significant usage of the phrase 'scale of values' which is also sufficiently congruous with its current general usage, while at the same time continuing to adhere to my view that the only intelligible criterion for determining the kind of value-experiences which should be sought is the eutonic principle, in its relation both to the individual and to the community of individuals.

I hope that I have made reasonably clear the way in which I interpret the questions at issue in the perennial disputes over the 'subjectivity' or 'objectivity,' the 'relativity' or 'absoluteness,' of value, and the conclusions I have come to in regard to these. There remains one minor point for brief discussion in regard to value. A distinction is sometimes made between what are called 'intrinsic' and 'instrumental' values. Certain things are regarded as having value 'in themselves.' This is called 'intrinsic' value. Other things, while not regarded as having this intrinsic value, may be the occasion of the occurrence of what is regarded as having intrinsic value. These things are then said to have 'instrumental' value.

No difficulty arises here. It is just a matter of agreeing on the usage of terms. In my own terminology, I should say that certain experiential situations which may be tonically neutral, or nearly so, in themselves may nevertheless lead to other experiential situations which are eutonic. In some cases the antecedent situation may even have a measure of dystony, which the individual accepts as an inevitable condition, the world being what it is, of attaining the particular eutony which is sought. Whether or not we speak of such antecedent situations—neutral or partly dystonic—as having 'instrumental value' is a matter of taste.[1]

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[1] I have discussed certain points in connexion with value in rather greater detail, and with a somewhat different manner of approach, in *Happiness, Freedom, and God*, Chapter II.

Conclusion

The theory of 'ethical eutonism' which I have developed in this chapter comprises the eutonic principle—namely, that the only intelligible and significant aim of human activity is the attainment of a stable and durable state of completely eutonic experience—together with the views on 'freedom' and 'moral responsibility' which I have stated. In the course of the discussion I tried to make it clear that what are commonly regarded as antitheses between egoism and altruism and between freedom and determinism are false antitheses. Egoism and altruism are ends in themselves which, from the very nature of things, are complementary and each a means to the other. In their interrelation they conform entirely to the eutonic principle. Freedom and determinism, again, can be defined in a way which, while sufficiently congruous with the general usage of the terms, resolves the contradictions and difficulties arising in the frequently confused discussions of them, and shows them to be compatible and consistent with one another and with other elements in consistent symbol systems.

There is, however, one thing I should like to add in connexion with 'moral responsibility.' I have said that 'blame' and 'praise,' 'reward' and 'penalty,' cannot be regarded as justified by supposing that there is any ultimate or absolute sense in which the individual is responsible for his actions. But there is of course a factual—as distinct from a 'moral'—sense in which such things may be justified. Thus it is a psychological fact that praise and reward may have the effect of spurring the individual to conduct making for a greater measure of eutony, both for himself and for the community. Similarly, penalties, and blame in the form of verbal expression of censure, may be of such a nature as to modify human action which is the occasion of dystony and transform it into conduct which is the occasion of eutony. But praise and blame, penalty and reward, administered in this way are not matters of moralizing based on the supposed ultimate 'moral responsibility' of individuals but means instrumental to the attainment of eutony and avoidance of dystony by all concerned.

It is of interest to note in this connexion that an attempt has recently been made to *define* 'moral' characteristics as those which can be altered by means of rewards and punishments.[1] While not necessarily subscribing to the details of the argument advanced for this way of avoiding some serious difficulties, I would point out that in certain important respects it is very much in line with the view I have been advocating.

After developing in some detail the theory of eutonism in connexion with ethics, I considered more briefly its application to questions of value in general. I have developed the theory because it seems to me intelligible, self-contained, self-consistent, consistent with symbol systems in other fields, and valid and effective in its application to non-symbolic experience. I suggest that it is superior to other current and traditiona theories, which, through failure in one or other of the respects I have just mentioned, lead to contradiction and consequent conflict that has in the past often taken the form of actual physical conflict.

Ethical eutonism, though it involves egoism in the sense I have explained, is not an ignoble or 'selfish' theory. Neither is it a 'soft' theory in that it asserts the attainment of eutony and removal of dystony as the ultimate end. For it is fully alive to the existence of difficulties of all kinds, and to the need for effort and striving in achieving its own end. Such effort and striving in overcoming the factual difficulties arising from the nature of things may—and should—itself be the occasion of eutony; but it is to be clearly distinguished from the wretched *conflict*, fundamentally psychological in nature, which is and has been the occasion of so much misery in individuals and in the relations between individuals. The removal of the dystony which results from this, and its replacement by eutony, is indeed one of the chief aims of the application of the eutonic principle, and it demands a degree of resolution and effort no whit less in any respect than that which has so often been devoted to the carrying on of the process of conflict in and between human beings.

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[1] See Nowell Smith's article on "Free Will and Moral Responsibility" in *Mind*, January 1948.

CHAPTER VII

Metaphysics

THE question has sometimes been asked, especially of late, "Is metaphysics possible?" The answer to this rather pointless question seems clear. While one could of course define and use the word 'metaphysics' in such a way as to imply that the study of metaphysics was a quite barren and non-significant pursuit, the fact remains that from earliest times there have been eminent thinkers who spoke of the field of their particular study as 'metaphysics,' and who were regarded, by all those qualified to consider the matter, as 'metaphysicians.' There is therefore no substance in the question put thus; but perhaps closely associated with it in many people's minds is another question which is certainly significant and important, and which demands an answer. This is the question often stated in some such form as "Can metaphysics transcend experience?" Before discussing this question, however, it is necessary to consider the nature of metaphysics, and to define it in a way which is congruous with the general usage of the term.

The Nature of Metaphysics

I suggest that metaphysics is most appropriately defined as the development of a symbol system of the highest possible degree of generality—that is, a symbol system which is consistent in itself and at the same time capable of comprehending in its scope all other symbol systems, and of correlating these completely with one another. This involves an investigation of the self-consistency of such symbol systems, and of their consistency with one another.

It is clear that thus defined metaphysics is characterized by three features which have been traditionally associated with it. It is at the same time *synoptic* and *synthetic*—that is, it includes all other fields in its purview, and attempts to bring them into harmonious relation with one another. It is therefore also *critical,* in that it scrutinizes the consistency and effectiveness of the symbol systems with which it deals. Thirdly, as a corollary, it is particularly concerned with borderline problems—that is, with problems involving the adjacent and perhaps overlapping parts of two or more symbol systems. Metaphysics is thus comprehensive in the sense that it covers all fields of experience, and where necessary fills in gaps left by the special branches of knowledge.

It is interesting to compare this account of metaphysics with another traditional definition—namely, that metaphysics is a systematic inquiry into the ultimate nature of reality. I think that, while those who framed this definition would no doubt regard it as something very different from the definition of metaphysics which I have suggested, the one can nevertheless be translated into the other without difficulty or incongruity. For any 'inquiry' into the nature of reality is necessarily a process of argument and development in symbols, and its results must be exhibited in the form of a symbol system. As the inquiry is directed to what is called 'ultimate,' the symbol system must be comprehensive, in that it covers, integrates, and renders harmoniously consistent with itself and with each other the symbol systems emerging from all aspects of experience. By the same token, it must be terminal, in the sense that it does not give rise to the necessity for something further in the form of a still more general symbol system; indeed, if it did it would contradict itself, and the process of the 'inquiry' would have lost its meaning. Such an inquiry, I submit, is in effect identical with metaphysics as I have defined it, and, no matter what private hypostatizing might be indulged in by some of the metaphysicians who developed it, the validity of its results could in fact be judged only by the self-consistency of the symbolism and by the adequacy and effectiveness of the responses evoked by the latter to experiential situations of all kinds, symbolic and non-symbolic. But I need not pursue the matter further here, for the points raised will be illustrated when we come to consider examples of the great metaphysical systems.

I think I am right in saying that symbols peculiar to metaphysics are few in number. Such as there are—and terms like '*the* Absolute,' 'noumenon,' and 'monad' are examples of them—have been used by philosophers in their symbol systems in a purely metaphysical sense. Other symbols employed in metaphysics also occur in the symbol systems constituting the special branches of knowledge. These come into metaphysics in one of two ways. They may occur in connexion with the critical and synthetic functions of metaphysics. In this case they will be used as in the special systems from which they come, for it is with the nature and validity of this usage that metaphysics is then concerned. On the other hand, they may occur as part of the metaphysical symbol system itself, in which case they will not be used in precisely the same sense as in the special branches in which they also occur, but analogically, and with a different shade of meaning. The term 'substance' can be regarded as an example of a symbol of this kind. It is clear that in such cases the metaphysical usage should be critically examined, especially in regard to the effect on it—if any—of the non-metaphysical usage.

Metaphysics and Experience

We may now go on to consider the question "Can metaphysics transcend experience?" In this form the question is not very clear, but I think it would be fair to say that what those who ask it have in mind could be stated thus: "Can metaphysics yield knowledge about anything which is not part of experience?" If this is the object of the question we can limit the inquiry to the metaphysician's own experience, for if his metaphysical study cannot give the metaphysician knowledge about anything which is not part of his own experience the question is completely answered, and in the negative.

Now, the pursuit of metaphysics is the development of a symbol system within and from the various fields of experience, symbolic and non-symbolic, and its results are expressed in a symbol pattern. So far as these results can be said to be 'true,' judged by the criteria of truth given in Chapter II, they constitute 'knowledge,' but metaphysics, like any other kind of symbol system, is nevertheless conditioned by the nature of symbolism in general and knowledge in particular.

As I pointed out in Chapter II,[1] knowledge, as distinct from acquaintance, cannot convey reality so that its nature is realized or prehended; for this reality must be *lived*—that is, experienced. Hence metaphysics cannot in any case convey the nature of a reality which is not within the experience of the metaphysician. But can it give knowledge of such a reality analogous to the knowledge of the various aspects of experience which is comprised by the symbol systems of the special branches of study? Now, symbolism, by its very nature, consists in responses to experiential situations, and it evokes responses—symbolic, non-symbolic, sensory, imaginal, motor, and emotional—to experiential situations. The whole matter is within experience, and metaphysics differs from, say, physics or psychology only in what may appropriately be called its 'generality' and 'comprehensiveness.' I therefore suggest that metaphysics can in no wise be said to transcend experience in the sense that it gives knowledge about what is not part of experience.

Again, the symbol system of the metaphysician springs from his own non-symbolic experience and from his symbolic experience, which consists in what he reads and the utterances he hears, all of which is part of his experience. Moreover, the metaphysician is himself within reality; he cannot study it 'from the outside,' as it were. Hence an attempt to demonstrate the transcendence of metaphysics would itself commit the fallacy of pseudo-transcendence. The fact that the thinker, whether he is thinking metaphysically or otherwise—or, more strictly, the monadic experience in which the symbol 'I' of the thinker occurs—is an integral part of reality gives rise to what I have called the 'circularity' of true symbol systems, and as this is a general question we may well consider it further at this point. Clearly, too, another issue we shall have to face shortly is that of solipsism.

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[1] See pp. 77 f.

Circularity of Symbol Systems

To talk of 'circularity' in this context is, as a matter of fact, somewhat misleading, for the characteristic we are concerned with here is not peculiar to the circle; it is one which the circle shares with certain other curves—namely, that it is 're-entrant,' or 'closed'; if you follow it you come back to where you started.

A true symbol system is closed. All the symbols and symbol patterns in it are linked with one another—*e.g.*, through definitions and statements (in words or other symbols) of various kinds—all of them being part of the symbol system. There are no loose ends. This is, I think, fairly clear in the case of symbol systems at a high level, such as mathematical physics, but it is equally true of systems at low levels. Suppose a certain experiential situation evokes from me such a response as "You are hurting me," or, on a different occasion, "I see a blue patch." If these are regarded merely as response-noises no question of 'truth' arises; indeed, it would not be significant. But, taken as symbol sequences, their truth-value cannot be assessed if they are considered in isolation. They must be considered in relation to other symbol sequences and patterns which are part of the symbol system of ordinary 'communication,' especially those involving such terms as 'I,' 'you,' 'hurt,' 'see,' 'blue,' and so on. But, it might be asked, must not the actual non-symbolic experience in which they arise also be taken into account? Certainly, but this can only be done through consideration of other experiential situations and the symbol responses to them—that is, through comparisons made entirely within the symbolic field. The adequacy of the symbol response in dealing with the experiential situation—*e.g.*, so as to change it in the way sought—of course comes in as one criterion of 'truth,' but, *if taken alone*, it becomes simply the effectiveness of a mere noise-response. In assessing truth it must be taken in relation to the self-consistency of the whole symbol system. I am not saying that 'closedness' of the symbol system is a sufficient condition of truth, but only that it is a necessary condition. No part of the symbol system is 'attached to' or 'anchored in,' non-symbolic experience alone; every part is related to other parts of the symbol system. The contrary view has been held on the basis of the 'correspondence' theory of symbolism and of truth—*i.e.*, that at least certain low-level symbols and symbol patterns are correlated one to one with definite items of non-symbolic experience. I endeavoured to show in my second chapter the non-validity—indeed, the non-significance—of this view, one example being taken from the case of 'prediction,' [1] where I pointed out that we could not significantly speak of the 'comparison' of the symbolic with the non-symbolic, but only of the symbolic with the symbolic. I conclude, therefore, that true symbol systems are closed, and that one at any rate of the reasons for this is that the symbol systems which are developed in the process of the study of experience are themselves within experience. The philosopher looks at reality, and must look at it, from the 'inside,' not the 'outside.'

To the foregoing must be added the corollary that, just as the symbol systems of lowest level emerge from non-symbolic experience, so do the symbol systems at higher levels emerge from those at lower levels, all being part of experience. Hence a true symbol system at any level is closed *at that level*, though it arises, of course, as a response to systems at a lower level, and evokes responses for dealing with the latter. In brief, the link between the symbolic and the non-symbolic, and between different 'levels' of the symbolic, is not one of item-correlation but of behaviour-response.

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[1] See pp. 60 ff.

What, then, is a '*vicious* circle'? This question is perhaps best approached by considering why a symbolism such as that of physics, for example, though closed is not commonly regarded as constituting a 'vicious' circle. The test is really, I suggest, of a pragmatic character. Though physics, considered as a symbol system, may be closed, it nevertheless evokes responses which are reasonably adequate and effective in dealing with experience. But some closed systems may be quite inadequate, and such as to evoke no effective responses for dealing with experience. Direct, or nearly direct, tautologies or expressions of identity would be examples of this. It is indeed largely a question of scope. It is a fact that relatively elaborate symbol systems, such as those of physics, psychology, biology, and so on, do evoke useful responses, whereas systems of relatively very narrow scope may not do so. This is not a fact which requires 'explanation,' nor would there be any point in asking for such an explanation. The whole business is an experiential process directed to the achievement of harmony, adjustment, and eutonic experience generally, and it is simply a fact—a fact of experience—that certain symbol patterns in the form of closed systems contribute effectively to the achievement of this end, as a method of making this contribution which has emerged in experience, while others of limited scope make little or no contribution towards it. The latter receive the title of 'vicious circles.' In a vicious circle not all the symbols in the pattern have clear meaning, emergent from experience—symbolic or non-symbolic—in addition to definition in terms of other symbols. The two points to keep in mind throughout are, first that the relevant criteria are the self-consistency of the symbol system *and* its effectiveness in evoking responses which contribute to eutony, remembering that the first criterion itself involves eutony, and second, that there is no question of 'correspondence,' as traditionally understood, between symbols and symbol patterns and supposed 'entities,' or 'facts.'

It should perhaps be added here that although for convenience I have referred to symbol systems such as those of physics as being 'closed' without reservation, I do not of course hold that at present such systems can be regarded as completely closed and self-consistent. As I have said earlier, in the light of experience certain contradictions may become apparent in a symbol system, or certain symbols may have had to be introduced though left temporarily 'unexplained,' in the sense that they cannot quite be fitted integrally into the system and so interrelated with the rest of the symbol pattern as to maintain the closure of the system. There is involved here a significant sense in which the self-consistency, closedness, and consequent 'truth' of a system may be regarded as susceptible of 'degrees.' The achievement of 'truth,' in my usage of that term, is in fact a continuing and perhaps never complete experiential process.[1]

Solipsism

The metaphysician cannot avoid facing the problem of solipsism—that is, the theory that his experience is the only existent, that it is analogous to a dream, and that his belief in what he calls the existence of other people or other entities is invalid.

The question of solipsism has been thoroughly, though by no means conclusively, traversed, and I do not propose to repeat so wearisome and barren a process. The whole business is confusing, for, should I believe solipsism to be true, I must regard all that I have heard or read about solipsism as part of the sole existent—my own experience—and not due to any 'agencies' external to my experience. My own view—and one necessarily speaks egocentrically here—is that, as a metaphysician, I could construct a solipsistic symbol system which would be self-consistent and effective *up to a point* in experience, though I might find it very difficult so to condition myself as always to act on the basis of a genuine belief that I was the only existent. Nevertheless, I think there are conclusive grounds why I should reject solipsism of a kind fully consonant with my general thesis as to the nature and function of metaphysics.

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[1] See p. 68.

Let me assume—and there are good grounds for the assumption—that it is possible to develop self-consistent symbol systems, both on a solipsistic and on a non-solipsistic basis, and that both would be largely adequate and effective in regard to the responses they evoke within my experience. The choice between them must then be made on other grounds. I believe there are two reasons for rejecting solipsism. The first is that, as a matter of fact and no matter what the reason, I find it much simpler and easier to act according to a pattern determined by a non-solipsistic background. The second, and related, reason is, again as a matter of fact, that a non-solipsistic system evokes a greater sense of harmony, particularly in the form of what I call 'intelligibility,' and appropriateness in my experience as a whole. It is for this reason that I said that solipsism is adequate and effective in experience only up to a point. For one of the criteria of the truth of a symbol system is, not merely some characteristic of the system itself, but the degree of eutony which characterizes the experiences resulting from the responses it evokes. Judged by this criterion, solipsism seems to me to fail in comparison with non-solipsism, and I therefore feel fully justified in rejecting it.

Solipsism being rejected, I then have to consider what is involved in a symbol sequence such as the statement "Other entities exist besides myself." If we limit discussion at first to 'other people' I think it can be said that the relevant symbolism arises in two ways—first through 'observational' experience, from which emerges a symbolism relating to what we call 'the behaviour of other people,' and second through imaginative experience, from which emerges a symbolism relating to what we call 'the experiences of other people.' It is the combination and fusion of these symbolisms which evokes responses for dealing with inter-personal and social experiential situations.

Analogous considerations apply in connexion with the behaviour of non-human organisms, but full discussion of this, and of the inorganic and 'inanimate,' would involve me in the development of a full metaphysical system, and this I wish to postpone for the moment, though I shall attempt it later. But one point of importance may well be considered here. As a result of our own experience, and of the variations within it, we often speak of different types of experience, including some unlike anything we have ever undergone. But can these latter have any significance for us? I think the answer is again that it is a matter of symbolism. For example, we may find that the most effective way of dealing with some situations involving animals or other non-human organisms is through a symbolism deriving from the statement that these organisms have experience differing in type from our own. But evidently this symbolism must emerge and derive its meaning, not directly from our non-symbolic experience but from another level of our symbolic experience—namely, the symbolism which embodies statements resulting from the behaviour of the organisms in question, and which has emerged from the relevant experiential situations.

At this point it might be asked why, if we can speak in some sense significantly of types of experience unlike any of our own, we cannot also speak significantly of types of 'existence' or 'existent entities' other than the experiential. The answer is twofold. Apart from variation in kind of experience, there are certain *general* characteristics of experience to which I have drawn attention.[1] In our symbolism we can therefore speak significantly of experience different in kind from our own but we cannot speak significantly of something entirely different from experience as such. Following on from this, there is also the question of the nature of the relation between the terms 'experience' and 'existence.' The issue here might be crystallized in the form of a question from a hypothetical critic, who might say, "You have explained statements about the existence of other beings as symbolic responses to situations in your own experience, but this does not get us beyond the latter. Are you or are you not holding that other beings *really* exist?"

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[1] See Chapter II, pp. 93 ff.

The direct answer to such a question might take the form of another question addressed to the critic—namely, "What do you mean by 'really exist'? How are you using that phrase?" In my own usage, as explained in the passage in Chapter II to which I have just referred in a footnote, 'experience' and 'existence' are in effect equivalent; experience is existence, existing is experiencing. If it be objected that this begs the question I should reply that this usage is in fact congruous, not, I admit, by any means with universal usage, but certainly with usage over a wide field, and that, as I shall try to show later, it is possible to develop a comprehensive, consistent, and effective metaphysics in which this relation between 'existence' and 'experience' is a main component, while any objection based on alleged question-begging loses its force when the metaphysical symbol system is viewed as a whole. The objection is in fact no more valid than would be similar objections to certain current effective symbol systems in various fields on the ground of 'circularity' of the kind we have been considering.

We can, of course, define 'existence'—as we can any other symbol—in any way we wish, and I am aware that it has sometimes been defined in ways which appear to conflict with my usage. For example, in mathematical logic if $f(x)$ is a propositional function which is true for certain particular arguments of the variable x it is said that 'arguments satisfying $f(x)$ *exist*,' and, according to Bertrand Russell,[1] this is the fundamental meaning of the word 'existence,' other meanings being either derived from it or embodying mere confusion of thought. But I cannot see that the logicians have the right to impound the symbol 'existence' in this way for their own purposes, or to assert that their particular usage of it embodies the "fundamental" meaning of the term. I should challenge the statement that the "fundamental" meaning of the term, in the light of the manner of its emergence in human experience, is what they say it is, and I should venture to say that my usage of 'existence' is at least as congruous with general usage as is that of the logicians. The logicians naturally have the right to *define* 'existence' as they wish, but not to criticize other definitions of it on the ground that they alone are using the word with its fundamental *meaning*. Moreover, I think that one can go a little further in this matter, for what does such a statement as "arguments satisfying $f(x)$ exist" mean, and what is the manner of its verification? Take, for example, the propositional—or, as I should prefer to say, *sentential*—function 'x is human,' where 'human' is defined, say, as 'featherless biped.' What does it mean to say that values of x 'exist' which satisfy this function? I suggest that it means—and can only mean—that there are in fact experiential situations which evoke a response in the form of some such symbolic sequence as, "There is a featherless biped." In other words, so far as 'existence' comes in here at all it is in the form of the occurrence of certain kinds of pattern within experience. The same considerations hold when our sentential function is at a higher level, and its verification arises, not from non-symbolic experience but from symbolic experience at a lower level. In all cases the terms 'existence' and 'experience' are indissolubly related. I should therefore say that, so far from it being a fact, as the logicians contend, that their 'meaning' of 'existence' is fundamental, other meanings being derived from it, the converse is the case, and the logical usage of 'existence' is derivable from the original manner of emergence of that term in experience.

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[1] See, for example, his *Introduction to Mathematical Philosophy*, p. 164.

But to come back to our critic's question. I should say that I hold that other beings 'really exist' in the sense that I find that the symbolic statement "other beings exist" and, in my usage, its equivalent "there are monadic experiences other than 'mine'," together with a symbol system in which these statements are integral parts, introduce a greater measure of harmony and intelligibility into my experience, and a greater measure of adequacy and effectiveness in response, than does a solipsistic system. I should add that this is the only significance I can see in the statement "I believe that other beings really exist."

Time

In these preliminary sections of this chapter I am considering a number of topics which are generally associated with the fundamentals of metaphysical study, and endeavouring to reach some definite conclusions in regard to them before going on to discuss the great metaphysical systems or to develop a system of my own. One such topic is that of time.

The problems which arise in connexion with time have been generally regarded as among the most elusive and intransigent with which the philosopher is faced. I have already made some comments on this,[1] and I now wish to suggest that the problems and difficulties in question are largely artificial, being concerned with symbolism and not with a non-symbolic 'reality' independent of the symbol systems developed in human experience. Temporal symbols, like all other symbols, emerge in experience. They are evoked by certain aspects of experiential situations, and they evoke responses within such situations.' They occur and operate, therefore, entirely within experience—that is, within what is characterized by 'presentness. They are employed in particular in dealing with the memory and expectation aspects of experience, and in connexion with special symbol systems such as that of physics, and although they include the terms 'past' and 'future' they function always in situations which, being experiential, are 'present.' Difficulties arise only when we try to hypostatize the symbolism, and to regard 'time,' not as a symbol within experience, but as a reality existing independently of experience, 'in' which experience occurs.

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[1] See pp. 113 ff.

The difficulties which have been traditionally posed in connexion with time are associated mainly with the infinity of the time series. I do not include as difficulties here the infinity of 'instants' in a finite portion of the physical time series or the nature of the 'continuity' of this series, for I think these would now be generally admitted to be a matter of symbolism, and capable of being dealt with satisfactorily by methods involving symbolism alone. The chief trouble, as commonly alleged, is that we get equally into difficulties whether we regard time as endless or as having a definite beginning and a definite end.

Now, as I have said, this trouble seems to me to arise only if we hypostatize 'time.' The only significant question is whether a symbolism including an infinite time series, without beginning or end, functions effectively in dealing with experiential situations—and I see no reason for not answering this question in the affirmative. The fact that an effective temporal *symbolism* requires the inclusion in it of an infinite time series raises no difficulty, for there *is* no difficulty about such a series as a symbolic sequence, though it will of course be the business of the metaphysician to see that it is consistent with symbolism in other fields. But if the metaphysician hypostatizes time and the temporal series as something transcending his experience he is guilty of the fallacy of pseudo-transcendence, and is at once in trouble, for he is trying to view what is an integral part of his experience as if it also 'existed' independently of the latter.

There is an analogy here with spatial symbolism. Traditionally 'space' was hypostatized and regarded as infinite, with all kinds of consequent difficulty. But in the development of physics the symbolism has broken down, and space is now regarded as finite though boundless, like the surface of a sphere; and this has itself made evident the fact that in the theory of space we are dealing with a symbolism, and not with a non-symbolic reality. The same is true in the case of time, but here we require the symbolism of an infinite and not a finite time-series. Nevertheless, as a symbolism this no more raises difficulty than does the symbolism of a finite but unbounded space.

It is necessary for the metaphysician to consider the relation of his temporal symbolism—particularly in regard to his time-series—to that of 'other people,' and for simplicity I shall assume that the circumstances are such that refinements and complications introduced by the theory of relativity may be neglected. It must be remembered, however, that the meaning for the metaphysician of the 'time-series of other people,' like that of the 'existence of other people,' arises entirely from occurrences in his own experience, and that the data from which he constructs the symbolism of the relationship between his own time-series and that of others are also entirely within his own experience.

The main point I wish to make is that the relation between the 'instants' of a 'private' time-series—that is, the time-series of an individual monad or monadic experience—is different from that between 'instants' in the time-series of different monads. Suppose I denote the instants of my time-series by a, b, c, etc. Between these instants there is the relation I call 'succession,' which I will symbolize by S, so that aSb, bSc, etc.—*i.e.*, b will 'succeed,' or 'be after,' a, and so on. From my observational experience there emerges the symbolism of a relation of 'correspondence' between my instants and those a', b', c', etc., of another monad—expressed, say, as aRa', bRb', cRc', etc. From such correspondence there emerges the symbolism of a 'public' time with instants (say) A, B, C, etc., 'corresponding' to the instants of the various private time-series denoted by small letters. Now it is clear that the relation between a and b, for example, is different from that between a and b'. In the first case the relation is S; in the second it is a relation defined by aSb and bRb' together or, equivalently, by aRa' and $a'Sb'$ together. Hence a and b' are not temporally related, in the sense that a and b are so related. We can of course frame a conventional definition in virtue of which we may say that an instant in one time-series is 'after' an instant in another time-series, for we can say (arbitrarily) that *b′* is after *a* if the instant of the public time-series with which *b′* is correlated is after the instant of the public time-series with which *a* is correlated; that is, we may say that *b′* is after *a*, *by definition*, if *aRA*, *b′RB* and *ASB*. But it is evident that this must be a convention, and that *b′* is not 'after' *a* in the sense in which *b* is 'after' *a*. All of which is simply a symbolic way of stating the fact that the symbolism, which we call 'temporal,' arising from certain aspects of an individual monadic experience is not applicable as such to relationships between different monadic experiences. 'Time' is within the individual monad; it is not something independent of the monads 'in' which they exist.

By analogy, consider the surfaces of two terrestial globes. The relation between any two points on one of these surfaces is quite different from that between any point on one surface and any point on the other surface. Hence the relationships between the two spaces constituted by the surfaces of the two globes is not in any way of the same character as the relationships within these spaces, and if we call the latter 'spatial' we cannot employ the same term for the former. Similarly, there are no relations between the experiences of different monads like the 'temporal' relations within the experience of an individual monad. Hence although an individual, from data within his own experience, may correlate instants in his time-series with what—again as arising from occurrences in his own experience—he calls the 'time-series of other people' in a way already explained, he cannot significantly speak of other monads as 'existing' 'before,' or 'after,' or 'simultaneously with,' him, as this involves a temporal symbolism applied to relations which are not congruous with those within his experience from which that symbolism derives its meaning and its definitions.

An interesting point arises in connexion with 'unconsciousness' to which the correlation of different time-series is relevant.

The experience of the individual is strictly one and continuous; there are no 'gaps' in it. For if there were they would be either experienced or not experienced. Now, it cannot be said that they are experienced without a contradiction in terms; while if they are not experienced there is no breach of continuity as such. There may, of course, be very rapid change in the content of experience, but this can—and does—happen sometimes without the intervention of unconsciousness at all. Hence, if I say I have been 'unconscious' it can only be as a result of some particular kind of occurrence in my experience affecting my symbolism of the correlation of my time-series with that of others. Now, I know that what is sometimes called the 'felt durations' of two periods of time in my experience may differ considerably even though the lengths of the two periods, as determined by their initial and final instants in my time-series, may be the same. For example, time, as we say, 'passes more quickly' when I am interested than when I am bored. Similarly, I may suppose that corresponding periods in the time-series of two different people may have different 'felt durations.' But there is no breakdown in the correlation of instants in the two time-series. Indeed, owing to the continuity of time-series and the infinity of instants within any finite portions of them, it is always possible to establish a one-one correlation between the instants of one time-series and those of another. In the limiting case, however, when a felt duration in the time-series of one person shrinks to zero, while the corresponding durations in the time-series of others do not, there is on this occasion a one-many correlation between the instants of the former and those of the latter. But this *is* only a limiting case of the one-one correlation, involving no contradiction. Hence, if I assert afterwards that I have been unconscious from, say, 3 P.M. to 6 P.M. it is because as regards felt duration the instants of my time-series from 3 P.M. to 6 P.M. have coalesced, and, from data in my experience, I am led to assert in effect a one-many correlation between this coalesced instant and the instants in the 3 to 6 P.M. period of the time-series of other 'conscious' people. Yet there is no discontinuity in my own experience, nor, therefore, in my 'existence,' neither does the necessary symbolism require it.

What I have said about the nature of time evidently has an important bearing on such traditional problems as those of 'creation,' 'immortality,' and a 'future life,' but I prefer to postpone consideration of these until I come to develop a general metaphysical system. But there is one alleged difficulty of metaphysical thought which I should like to discuss now—namely, that concerned with 'permanence' and 'change.' It is related to the question of 'substance,' in the metaphysical usage of that term, and the issues involved may be dealt with together.

Substance, Permanence, and Change

I believe the alleged difficulties which arise in this connexion to be largely, if not entirely, artificial, being due partly to a disregard or lack of appreciation of the nature of symbolism and its function in experience, and partly to a not uncommon confusion—implicit if not explicit—between two different contrasts—namely, that between 'permanence' and 'change' and that between 'identity' and 'difference,' or 'diversity.'

Let us consider the contrast between 'permanence' and 'change' first. The two words in question emerge as symbols in experience, and are responses to certain aspects of experiential situations. I would suggest that 'change' is prior, for it seems to me to arise from something in experience without which there could be no experience. If we try to imagine a state of what we might call completely 'changeless' experience it will, I think, be clear that we are trying to remove from experience something which is quite fundamental and essential to its nature, and therefore to monadic existence.

At the same time, there is something in the nature of the changes in the content of experience which causes us to speak of them as more or less 'gradual' (or 'slow') or more or less 'rapid.' 'Permanence,' on the other hand, is a term evoked by something in experience in the way of a limit to which certain aspects of it tend as the relevant processes of change become slower and slower. This permanence is always relative and never absolute; indeed, change and permanence in experience are relative and complementary to one another, and the symbolism associated with their relationship arises from something fundamental to the nature of experience.

I cannot see that any difficulty arises here so long as we remember that 'permanence' and 'change' are symbols arising *within* experience as responses evoked by something *within* experience. In regard to 'permanence,' however, we might perhaps go further and speak of the permanence of the individual monadic experience considered as a unitary whole. A spatial analogy may be of some help here, for it must not be forgotten that, although when we speak of 'change' in this connexion we are usually thinking of *temporal* change—that is, change from instant to instant of the individual time-series—there is also an analogous spatial change—that is, change from point to point of individual 'private' space in experience. To return to our analogy, however; suppose we have a global map of the earth. Then there will be qualitative change from point to point on the surface of the globe, though the globe considered as a whole might be termed permanent. The 'change' (spatial) is within the confines of the global surface, but this surface as a whole is, in a spatial sense, 'permanent.' Similarly, we might speak of the monadic experience as a whole as something 'permanent' within which there are spatio-temporal 'changes.'

But I do not think that 'permanence' is the most appropriate term in this connexion; it is better to use it simply in contrast to 'change,' both terms arising from elements *within* experience. Here, in fact, we pass to the second of the two contrasts I mentioned—namely, that between 'identity' and 'difference,' or 'diversity.' We should, I think, more properly speak of the 'identity' rather than the 'permanence' of the monadic experience-whole—or of the globe, in the analogy—there being 'diversity' *within* that experience-whole, a diversity which gives rise to the symbolism of change, in both a temporal and a spatial sense. Considered thus, there is no incompatibility between existential unity or identity and diversity of content; it is only when we think, wrongly, of time and space as something *in* which the monad exists instead of as something *within* the monad that difficulties arise in the symbolism, such as that posed crudely in the question, "How can something change and yet remain the same thing?" Evidently the points here raised will be relevant when we come to consider those problems associated with the nature of time to which I have already referred; such, for example, as 'immortality' and 'creation.' At this point, however, I will pass on to the question of 'substance.'

The *meaning* of the term 'substance' arises in experience mainly in connexion with tactual sense-experience, and the term is used in the symbol systems of various fields of knowledge and thought; however, I am here concerned with the *definition* of the term for the purpose of metaphysical usage, though, if the term is not to be incongruous, its definition will of course be related in part to its primitive meaning. I do not propose to spend much time in discussing 'substance,' but will simply define it as 'experience,' at the same time defining '*a* substance' as an individual monadic experience or 'monad.' All I am then concerned to show is, first, that this definition of 'substance' is reasonably congruous with the general usage of that term, and, second, that on this definition I can incorporate it consistently and effectively into whatever metaphysical system I may later try to develop. The second point must be postponed for the moment; the first I will deal with now.

Metaphysicians have not infrequently defined 'substance' by some such phrase as the "fundamental stuff of reality." As I have defined 'reality' and 'the existent' as 'experience,' and 'existing' as 'experiencing,' I am not, I think, guilty of any incongruity in defining 'substance' also as 'experience.' Moreover, I can do this without *at this stage* assuming some kind of monadology as my final metaphysical system, for *any* metaphysics must take account of the metaphysician himself—that is, of at any rate one monadic experience—and, if it be not solipsistic, of other monadic experiences.

'Substance' has also been frequently defined in relation to 'attribute'—*e.g.*, "Substance is that of which attributes are predicated." I should say, on the other hand, that both 'substance' and 'attribute' as symbols, and also the symbolism of the relationship between them, emerge in experience, and that their metaphysical usage relates to the general nature of experience rather than to particular aspects of particular experiential situations. Though this evidently differs in some respects from the general usage of the terms, there is again no incongruity so serious as to render unwarrantable my usage of the term 'substance' resulting from the definition I have given. I therefore do not feel that I have to defend this usage further at this point.

Causality

I will turn next to a consideration of the question of causality as a metaphysical topic. I believe that in this field it is especially the case that most of the alleged difficulties which arise are purely verbal or symbolic.

In the first place, I would suggest that the fundamental *meaning* of the word 'cause,' as a symbol emerging in experience, derives from that type of experiential situation which involves what we may call, for example, a 'sense of agency.' I am aware, of course, that in this verbal explication we are involved in a circularity; but this is inevitable, and, for reasons which I have given, is no objection. Our criterion must be the consistency of the symbolism embodied in the verbal interrelationships and its capacity to evoke as a response in the reader a sense of 'intelligibility' and 'appropriateness' as something which is both harmonious and meaningful.

The sense of agency is involved in the conative aspect of experience, and is associated with such words as 'effort,' 'activity,' 'volition,' and so on. Here agency is related primarily to the 'I' of the monadic experience in question. But there is in experience another aspect of agency, for the course of our activity is determined in part by what we should speak of as factors other than ourselves, which may hinder or impose themselves upon the course of activity on which we are set, and which, as we say, 'interact' with us. But here again, we must not hypostatize by assuming any particular kind of entities outside our experience. The fact is simply that experience gives rise to a symbolism involving both 'I-agency' and 'other-agency,' and my suggestion is that it is here that we have the origin of the fundamental *meaning* of 'cause.' The rest is, I think, purely a matter of symbolism, for we are concerned in it, not with meaning as deriving from non-symbolic experience, but with the definitions of symbols in terms of one another, and these definitions will vary with the particular field of symbolism.

We might, for example, speak of experiential processes involving agency as 'causal' processes, and in so far as we analyse these into temporal sections we might speak of the causal relation of an earlier to a later part of such a process as that of 'cause' and 'effect'; but, as the process is in fact continuous, the terms 'cause' and 'effect' are relative, and are defined, as I have indicated, simply for utility and convenience.

The definitions in, say, the field of physics will, however, not be the same as the foregoing. Here we are concerned with sequences and patterns of 'events,' defined as in Chapter III, and with the uniformities and correlations which these manifest. In so far as we use the symbolism of causality at all here, it will be by arbitrary definitions which are again devised for their utility and convenience for the purposes in hand.

The same is true of other fields of symbolism; however, I am not concerned to elucidate the particular ways in which causal terminology is, or may be, used in the various fields, but only to suggest that the fundamental meaning of cause is such as I have already indicated. For the rest, we are, in the realm of causality, engaged only in developing symbolisms which may be consistent and effective for certain purposes, and any difficulties which arise are therefore due, not to something inherent in the nature of reality, but to invalid hypostatization or other misuse of the symbolism, or to unsuitable or ill-devised rules of symbolism. In brief, the problem here, as elsewhere, is not to discover something about reality but to devise a consistent and effective symbolism for dealing with certain aspects of experience.

Four types of cause have sometimes been distinguished—namely, efficient, formal, material, and final causes. It will, I think, be clear that I have been using the word 'cause' in a sense closely akin to, if not identical with, 'efficient cause.' All I have to say about the other types of cause is that they seem to me to be purely matters of definition. If we like to call the structural pattern of a thing's content its 'formal cause,' or the end aimed at in a process its 'final cause,' we can of course do so, but I think this usage is arbitrary and misleading, since, unlike that of 'efficient cause,' it does not spring from the root-meaning of 'cause' in our experience.

A traditional problem about which a few words might be said here is that concerned with the distinction between 'transeunt' and 'immanent' causality. Transeunt causality occurs when changes in the state of one thing are the occasion of changes in the state of another thing; immanent causality operates when the changes of state of a thing are occasioned by one another, and are not determined by, or correlated with, changes in the state of another thing. The question is, how can transeunt causality be possible?

There is no real difficulty here; the matter is entirely one of symbolism and definition. It seems reasonable to suppose that the notion of transeunt causality originated in connexion with physical phenomena such as those of gravitational and electromagnetic attractions, symbolized as influences transmitted across a spatial void from one material body to another. Modern physics does not employ this symbolism, and accordingly does not give rise to any problem of transeunt causation. More generally, it may be said that everything depends on what we are going to define as 'one thing.' We cannot in fact define 'one thing,' as an independent entity without taking account of the causal processes involved in it, and if these processes involve what we should regard as another thing we can make our symbolism consistent only by revising it in such a way as to take both things together as a unity, instead of each separately as a supposed unity. On the other hand, we might define a thing by certain characteristics and then say that the latter are determined in part by characteristics defining another thing, so long as we regard this as pure symbolism, which it is. But if we hypostatize we are at once faced with the difficulty as to how one unitary entity can affect another unitary entity. Hence the answer about transeunt causality is that outside the realm of symbolism the question is non-significant, as it would involve a contradiction, though in symbolism itself 'transeunt causality' may sometimes have a convenient application. But I shall say a little more about this when discussing metaphysical systems akin to the Leibnizian monadology, where special difficulties are said to arise in connexion with transeunt causality.

No discussion of causality would be complete without at least a brief reference to what is sometimes called a 'first cause.' I shall, however, mention this only to postpone any full consideration of it till I come to the development of a metaphysical system. Evidently it is related to the question of time, which I have already considered, to the distinctive features of any system to be developed, and, in addition, to the place, if any, of the symbol 'God' in that system. But at this point I will turn to some further discussion of 'freedom' and 'determinism' as a natural sequel to the topic of causality.

Freedom and Determinism

The *meaning* of 'freedom' arises in the individual experience in situations involving behaviour-processes of the organism in its environment, especially purposive processes, and originally those of the organism of the individual concerned. These processes are conditioned, and often thwarted, by environmental factors of various kinds—they are, as we say, 'constrained.' Hence the original meaningful antithesis is not that between 'freedom' and 'determinism' but that between 'freedom' and 'constraint.' This antithesis is carried over by the individual to other organisms through observation, within experience, of their behaviour, and by analogy.

The antithesis between 'freedom' and 'determinism' arises at the symbolic level, but even here, as I shall try to show, the antithesis is artificial, and what lies at the root of it should be stated in a different form. Within a given field of experience of the individual the symbolism which emerges is such that the symbols and symbol patterns arising in one part of the field are related to those in another part of the field by the general rules of symbolism, and by the rules of the symbolism of the field concerned. It is this which constitutes the 'determinism' of each part of the field by the other. In so far as the symbolism of any part of the field arises only from interrelationships within that part, the latter may be said to be 'undetermined,' and I therefore suggest that the appropriate antithesis is that between 'determinism' and 'indeterminism,' and that the terms of this antithesis are relative.

The ultimate criteria of degree of determinism come from inference and prediction. The question is how far, from the symbolism emerging in one part, *X*, of an experiential field—'the characteristics' of that part—can we infer or predict the symbolism emerging in another part, *Y*, of the field. In so far as we cannot thus infer or predict, *Y* may be said to be 'undetermined' relative to *X*.

The prediction of eclipses is a stock example of determinism. A certain symbol pattern arises from initial experiences which we call 'observations' in the astronomical field. From this we infer, through the rules of the symbolism, the symbol pattern which will arise in a future observational experience. If the inferred and actual symbol patterns agree on comparison the inference is 'verified,' and the eclipse said to have been accurately 'predicted.'

There is, however, a further point. Any part of experience—and I use 'part' in the widest sense, to include dynamic processes and what we call 'temporal duration'—will have a certain degree of uniqueness—that is, some of the symbols which emerge will be immediate and *ad hoc*, and not initially derived by definition, though they may subsequently be involved in definitions. Such symbols are 'new,' or 'original,' in the fullest sense of those terms. I suggest that the most appropriate use of the term 'freedom' is to define the degree of freedom in any part of experience as the degree of uniqueness of that part, and I believe that this is what is really involved in arguments about 'freedom' and 'determinism.'[1]

It is nevertheless true that every part of experience is what it is, but to avoid confusion I think we should use a term other than 'determined' here. I should prefer to say that all experience is 'determinate,' but that any portion of it is only partly 'determined' by other portions. 'Freedom' is then neither 'indeterminedness' nor 'indeterminateness,' but 'self-determination.'

I considered the points involved here in connexion with ethics and moral responsibility.[2] Here I will only repeat that, while the individual is in part determined and in part self-determinate, there is no sense in which he can be regarded as ultimately 'responsible' for what he is and does. "I am partly free" and "*I* could *not* have acted otherwise" are not contradictory. "*I* could have acted otherwise" is, strictly, self-contradictory, for the experiential situation to which this statement refers is what it is, and could be different only if the circumstances or the characteristics of the 'I' were different—in which case it would be a different 'I,' and the statement in question would no longer be significant, as it referred to a particular, and different, situation.

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[1] See also *The Supremacy of Spirit*, p. 87, and *Happiness, Freedom, and God*, p. 118.

[2] See pp. 234 ff.

It may be appropriate here to make a brief reference to the question of 'order.' When once attention is directed to the existence of order in the world various inferences are drawn, especially in relation to the existence and nature of 'God.' But the 'existence of order' simply means that experience is such that there emerge in it definite symbol patterns and symbolic rules which evoke responses enabling us to deal with experience more or less adequately. 'Existence' and 'order' necessarily accompany one another as symbols in a symbol system if the latter is to be self-consistent, whereas a statement such as 'existence is chaos' could not form part of a self-consistent symbol system. But nothing more than this very general conclusion, which admittedly and inevitably involves a circularity, can be drawn from what we call the 'existence of order' in the world.[1]

I will pass here to the last of those special topics which I wished to discuss before going on to the consideration of metaphysical systems—namely, the relations between the fields of physics, biology, and psychology.

Physics, Biology, and Psychology

If my general thesis is sound the problems concerning the relations between different fields of study—and particularly between those fields now to be considered—are very different from what they have traditionally been supposed to be. I will begin by considering the relations between physics and biology, as these illustrate well the main points at issue. The relations of these two sciences to psychology raise additional points of a different kind.

It has been customary to state the principles of physics in terms of certain supposed entities and agencies, the ultimate entities being in the nature of particles such as 'atoms' and

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[1] See also *Happiness, Freedom, and God*, pp. 140 *ff*.

'electrons' and the agencies being in the nature of what are called 'forces,' such as 'gravitational force' and 'electro-magnetic force.' During the last century the notion of 'force' has been gradually replaced by that of 'field'—originally called 'field of force'—the motions of particles in a given region of space being regarded as determined by certain characteristics of that region called the 'gravitational' and 'electro-magnetic fields.' More recently still, the fields have come to be identified with characteristics of the 'metric' of the region of space concerned. At the same time, the material particles themselves have gradually lost their status as actual entities, vanishing as such in a maze of symbolic operators. I have considered the significance of these developments in some detail in Chapter III.

Now, the problems supposed to arise in connexion with the relationship of physics and biology are generally stated in terms of the older vocabulary of physics. The main problem posed has been whether the principles of biology can be stated in terms of the laws of the particles and forces of physics in such a way as to cover biological phenomena adequately; and, if not, whether the additional factors which have to be introduced are such as to give rise to contradictions or inconsistencies which make the relations between physics and biology unintelligible.

In what follows I shall, for convenience, use the accepted terminology without continually repeating reservations I have already made when considering the real significance of this terminology in connexion with the general nature of symbolism. I shall also take biology to include physiology.

The first thing to notice is that the present symbolism of biology includes the symbolism of physics and something more. In general, the statements in which the principles of physics are expressed are taken to apply to the biological field, though with modifications in certain circumstances which do not necessarily involve inconsistency between physics and biology. On the other hand, biology employs certain symbols—such, for example, as 'purpose' and 'natural selection'—which do not appear in physics.

The fundamental question posed here is whether the additional symbolism of biology is really necessary, or whether biology can ultimately be expressed in terms of physics; or, as I should say, whether the symbolism of biology can be reduced to that of physics without diminution of its effectiveness in biological situations.

It is interesting to inquire why this question has received so much attention, for it does not seem to me to be at all important metaphysically. The actual facts—the reality—are the physical and biological aspects of experiential situations. These are what they are, and are in themselves independent of the symbolisms which we have developed for dealing with them. The test of these symbolisms is not whether they can all be reduced to the symbolism of physics but whether the responses they evoke are adequate for dealing effectively with the various kinds of situation concerned. There is no metaphysical problem here. Such a problem arises only if we hypostatize the symbolism, and regard 'reality' as constituted, not by experience, but by certain non-experiential entities to which the symbols 'correspond.' It might then seem that the nature of the entities of physics, and the principles of their behaviour, were insufficient to account for—and perhaps in some ways inconsistent with—the entities and principles of biology. But the hypostatization which leads to this kind of problem is, as I have suggested, invalid, and I shall therefore give no further attention to this point.

It is nevertheless a fact that, apart from the considerations I have just mentioned, we are impelled to attempt the reduction of the symbolism of biology to that of physics—or at any rate, to try to assimilate the two symbolisms so that they form a unified whole. This is, I think, simply a characteristic of human nature; economy and simplicity in symbolism does in fact produce in us a kind of satisfaction; mainly, perhaps, intellectual satisfaction.

I do not think there could be said to be, even at present, any serious inconsistencies between physical and biological symbolism, for the experiential situations to which they respectively apply exhibit different characteristics, and, even when a situation has both physical and biological aspects, contradiction in symbolism is by no means inevitable. Consider, for example, the movements of an animal, especially 'purposive' movements. These are certainly determined in part by the principles of physics, but we cannot predict the movements of the animal entirely from the latter. What we have then to do is to see how the two symbolisms should be related and combined so as to cover the situation in question without symbolic inconsistency. This will generally involve statements limiting the kind of situations for which physical principles *alone* are sufficient, but there is no reason why it should involve any contradiction in symbolism.

The problem here, then, is not a metaphysical one at all, but simply the question as to how far, and in what way, certain characteristic human impulses or 'demands' in regard to symbolism can be satisfied. We do not know how far in course of time physical symbolism may be modified, and perhaps extended; neither do we know how far biological symbolism may be modified, and perhaps simplified. We may achieve a progressively more complete integration of the symbolisms, but the problem will remain one of symbolism in relation to human nature, and not one of metaphysics. Meanwhile no difficulty arises from the existence side by side of the two symbolisms, each trying to cover its own field adequately and effectively while at the same time trying to relate itself appropriately to the other. Thus, for instance, the biologists are not hindered or hampered in any way by the fact that the symbolism of physics takes no account of specific biological categories. It is true, of course, that any unification of physics and biology makes a contribution to the synthesizing task of metaphysics, and I shall refer to this fact again later, but a specific metaphysical problem would arise in this connexion only if the physicists and biologists developed patent inconsistencies which they themselves were unable to resolve.

Questions of a different kind arise when we come to consider the relation of psychology to physics and biology, for psychology, unlike physics and biology, is concerned with the *whole* of experience. All types of experiential content—sensa, images, emotions, volitions, and so on—fall within the field of psychological study. I have no doubt that this is the reason for the historical association between psychology and metaphysics; but why then is physics, say, not just a part of psychology, and why is psychology not identical with metaphysics?

I think the answer to the first question is that although psychology and physics both deal with sense-experience they are concerned with different kinds of *pattern* among sensa, even in the case of the experience of a single individual. In particular, the sensory patterns which form the peculiar study of psychology are those from which, among other things, there emerges the symbolism concerned with the 'body' of an organism. For instance, psychology studies the relation between 'sensation' and 'stimulus'—the symbolism of the stimulus itself emerging from content of sense-experience other than that constituting the sensation to which the stimulus is being related—and evidently the body is here involved. Moreover, psychology is concerned with situations in which not only sensa but also images, feelings, and movements play a part, and it studies the nature of the patterns which include relationships between these different types of experiential content. Physics, on the other hand, is concerned with sensa alone, and with certain routine patterns manifest among sensa, and in so far as the physicist deals specifically with organic bodies it is in general through the observation of bodies other than his own. In this observation, moreover, he deals with patterns of sense-experience which are quite different from the sensation-stimulus pattern, and to which he accordingly applies a purely physical symbolism.

The patterns which are the special study of biology (which here includes physiology), however, overlap to a greater extent those studied by psychology, for psychology falls into two parts, one of which is concerned with the observation of the behaviour of the bodies of organisms. Biology is also concerned with this behaviour, and here there is no sharp dividing-line between biology and psychology; any specific delimitation of their respective fields of study is arbitrary, or at any rate a matter of convenience. Broadly speaking, one might perhaps say that psychology is concerned more exclusively than biology with the behaviour of bodies considered as wholes, while biology is concerned much more than psychology with the nature of organisms in the past and their process of development as species in time. But the matter is one of definition, tradition, and practical convenience, and has no philosophical import.

Why is psychology not identical with metaphysics? The answer is simply that although psychology deals with experience of all kinds it is, as I have pointed out, concerned only with certain types of pattern within experience. Metaphysics, on the other hand, is concerned with every type of experiential pattern and with the relations between the different types of pattern. It is therefore not only more general than psychology but it also has a different function.

The best known of the traditional metaphysical problems in the present context is that of the relation between 'body' and 'mind,' and, before I leave the topics I have been discussing I must say something about this, although I think that it is largely an artificial problem, and that it is doubtful whether the great amount of attention given to it has really been profitable.

Body and Mind

It has been customary to regard 'body' and 'mind' as terms 'referring to' existent entities which are associated in a peculiarly intimate way presenting difficult metaphysical problems, especially in regard to the 'interaction' between the two. As thus considered, the attributes of mind—such as the capacity for perception, feeling, and thought—are quite different from those of body—such as spatial extension and the characteristic physical qualities of materiality. In view of this it has been considered extremely difficult to imagine and understand the nature of the relation between body and mind and the way in which they act upon one another. The traditional methods of dealing with the problem are so well known that it is unnecessary to dwell upon them here, though it may be remarked that they are in effect either an evasion of the alleged difficulties or, at most, a restatement of the observed facts in a different form.

If we consider these observed facts I think it is clear that the whole difficulty arises from the usual error of regarding such words as 'body' and 'mind,' and their associated terminology, as labels 'corresponding to' definite existent entities, whereas they are in fact symbols evoked as responses to different patterns in experiential situations. The real question here is the nature of the relations between these experience patterns and the development of a symbolism to deal with them.

The content of experience which gives rise to the symbol 'body' is sensory in character, though the sensa involved are of many different kinds. The content of experience which gives rise to the symbol 'mind' includes sensa, but also such things as images and feelings. The patterns involved are, however, different in some respects when the individual is considering the relation of his own mind to his own body from what they are when he is considering the relation of the minds of other individuals to *their* bodies. In the second case peculiarly 'mental' components, such as images and feelings, do not enter in, though the symbolism is extended by analogy to cover such components considered as associated with the purely sensory patterns involved in the observation of the bodily behaviour of the other person.

In every case, however, the mind-body problem reduces to that of the relations between different specific kinds of occurrences in experience, and is a matter for investigation by psychologists and physiologists, and for the development of a symbolism capable of dealing adequately and effectively with the particular kinds of experiential situation involved. The problem is in principle no different from that of the relations between other kinds of experience patterns, and it raises no metaphysical difficulty so long as we remember that these patterns are just what they are, and that we are not concerned to extrude from them invalid hypostatizations but with the need to develop a symbolism to describe them. I shall therefore make no further reference here to the mind-body problem, but will pass on to the consideration of metaphysical systems.

Metaphysical Systems

In constructing his symbol system the metaphysician is concerned mainly with two points; that the system should be self-consistent, and that the symbols and symbol patterns comprised in it should have meaning for him. The second of these points is of major importance in regard to the nature and power of metaphysics.

The metaphysician necessarily approaches his problem from the egocentric standpoint. For him, as for every other individual, the only reality which he prehends is his experience; it is, for him, the universe. Therefore, unless statements in the terminology of his system can be equated to statements relating to occurrences in his own experience, they are strictly meaningless for him.

Now, it may be said that I am merely using my terms in such a way as to render metaphysical statements purporting to transcend experience necessarily meaningless. To clarify this point, let me refer to what I said in Chapter II about my usage of 'meaning.'[1] In my usage the meaning of a symbol or symbol pattern is the situation in which it originally occurs as a response, the subsequent situations which evoke it as a response, and the associated images, etc., which cluster about it, and which are themselves responses to the situations concerned. My claim for this usage is that it is in accordance with the true nature of symbolism, and is at the same time sufficiently congruous with the general usage to make the definition of 'meaning' which it involves not inappropriate. It follows, then, that metaphysical statements which cannot be put in terms relating to occurrences in experience are meaningless, and that any critic of this view would have both to produce a definition of 'meaning' which was congruous with the general usage of that term and to show that, in terms of this definition, metaphysical statements transcending experience were meaningful. I do not believe this to be possible.

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[1] See pp. 48 ff.

The metaphysician must therefore consider, with regard to his statements, to what kind of occurrences in his experience they are a response, and what kind of future occurrences in his experience would evoke them as a response. Starting from this basis, I shall first try to bring out more clearly the issues involved by some discussion of metaphysical systems. I shall not attempt the task of reviewing all the bewildering variety of systems with which the history of philosophy is strewn; such an endeavour, apart from its magnitude, would be out of place in a book which is not solely or mainly concerned with metaphysics. Nor shall I proceed by way of a discussion of the systems of the great philosophers. I shall confine myself to a consideration of the broad types of system into which metaphysics has always tended to divide itself. These types of system can be conveniently classified by a number of antitheses: 'materialism' and 'mentalism' (or 'spiritism'), 'realism' and 'idealism,' 'singularism' and 'pluralism,' and 'monism' and 'dualism.' The antitheses clearly overlap one another, as they involve different principles of classification.

The first antithesis splits on the issue as to whether reality is ultimately material or mental in character. Is 'matter' or 'mind' the fundamental stuff of reality?

The crude materialism of the nineteenth and early twentieth centuries can be quickly dismissed. Not only was it stated in terms which physics has long discarded, but it was based entirely on the invalid hypostatization of physical symbols. It was quite inadequate to deal with those aspects of experience involving what we call 'life' and 'mind,' and its attempts to escape its difficulties by such doctrines as 'epiphenomenalism' were feeble and futile. It may be remarked in passing that more recent methods of escaping such difficulties—*e.g.*, the theory of 'emergence'—though not necessarily associated with materialism, seem to me to be equally futile, in spite of the respectability which they derive from the repute of some of the philosophers who have supported them.[1]

The modern version of materialism is the view that it is possible—or will in the end be found possible—to cover all the observed facts with the categories of physics alone; or, as I should say, to deal effectively with every type of experiential situation solely by means of the symbolism of physics.

Now, it is clear that the symbolism of physics at present is quite inadequate to deal with even the biological aspects of experience. Our responses to biological situations include symbols and symbol patterns beyond the scope of physics. But, though it may seem impossible to absorb biology in physics, may we not perhaps be able to absorb physics in biology? This has been attempted. For example, it has been suggested that the routine and repetitive patterns manifest in physical processes may be extreme cases of biological patterns. This view is supported by the fact that biological processes themselves exhibit different degrees of routine uniformity on the one hand, and of flexibility and variation on the other. Physical processes would then be regarded as biological processes in which repetitive routine was at a maximum and variation at a minimum approaching or reaching zero. It has also been suggested that physical patterns might be dealt with symbolically as involving the statistical effects of large numbers of biological factors. While each of these factors might vary over a certain range, they might average out statistically into a routine pattern.

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[1] For a fuller discussion of this question, see *Happiness, Freedom, and God*, pp. 101 *ff*.

These two suggestions can be combined by regarding the biological factors forming the statistical assemblage as themselves instances of small variation. The result would then be patterns of so high a degree of uniformity as to be sensibly invariable in form.

There is much to be said for this way of attempting the theoretical assimilation of physics and biology. It is easier to approach the matter from the biological end, for biology uses physical symbolism plus its own specific symbolism, and it is always less difficult to absorb the lesser in the greater than *vice versa.* The resulting science would be neither physics nor biology as traditionally viewed, but a combination which might be regarded, in effect, as a far-reaching development of bio-physics.

We are still left, however, with the problem of mind—that is, the problem of assimilating the symbolism arising from the psychological patterns in experience to the symbolism of a fully fledged bio-physics. So far as purely behaviouristic psychology is concerned, no fresh difficulties arise; for, as I have pointed out already, there is no clear dividing-line between biology and behaviouristic psychology. But how are we to bring in those patterns of thought, feeling, imagery, and volition which constitute the field of so-called 'introspective' psychology? I think the answer is that there is no way of doing this if we approach from the direction of bio-physics. On the other hand, it might be urged that, since mental processes can be related to biological behaviour through introspection, observation of our own bodily behaviour and that of other organisms, and the use of analogy, and that since mental processes themselves exhibit varying degrees of routine uniformity, we might be able to develop an all-embracing symbolism by approaching the matter from the psychological end. This brings us to 'mentalism,' the metaphysical system which is the antithesis of materialism.

Mentalism holds that the ultimate constituents of reality are minds, and that all that we observe in experience is the manifestation of the activities of minds. Much will depend here on what is held to be the content of an individual mind, the status of the sensory aspect of experience being especially relevant. So long as we distinguish sharply between those patterns in experience which give rise to the term 'matter' and those which give rise to the term 'mind' a mentalistic theory is inadequate. If, however, we regard the whole content of an individual experience, including sensa, as constituting a 'mind,' and the symbolism of matter as one of the many types of symbolism arising from the wide variety of experiential situations, then mentalism becomes in effect equivalent to monadism. I shall postpone discussion of mentalism under this aspect till I come to develop what seems to me to be the most satisfying type of metaphysical system. I would only suggest here that, in view of the close association between 'mind' and 'experience'—which follows from the nature of the circumstances in which symbolism emerges—a mentalistic approach to the problem of evolving a satisfying metaphysical symbol system is more likely to be fruitful than is a materialistic approach.

One theory of interest in the present context is that known as 'neutral monism.' This theory, which appears in embryo in the work of William James and some of his contemporaries, was later developed by Bertrand Russell and others in conjunction with the theory of 'logical atomism.'

Neutral monism holds that the fundamental stuff of reality is in itself neither material nor mental, but exhibits different patterns in what might be called, metaphorically, different cross-sections. Logical atomism holds that the ultimate constituents of the stuff of reality are definite particulars of which sensa are a notable type. Taken one way, the sequences and patterns of these unitary entities form what we regard as enduring material bodies; taken another way, they form the content of 'minds,' or, as Russell sometimes calls them, "biographies."

If the main thesis of this book is sound it follows that the theories of logical atomism and neutral monism are invalid.

The entities of logical atomism are mere hypostatizations of symbolism. The symbolism may be useful for some purposes, but we cannot base an effective and comprehensive metaphysics on its hypostatization. As for neutral monism, this fails to take sufficient account of the fact that all that each of us prehends is one only of its types of pattern—namely, the 'biographical,' the content of an individual experience—within which there occur certain sensory situations which give rise to the symbolism of matter. If we start from such a monadic experience we may be able to develop an adequate metaphysical symbol system; but if we start from neutral stuff we cannot render intelligible the fact that for us reality is the unitary monadic experience—which the neutral monist would call a 'biography' or 'mind'—while 'matter,' with its associated symbolism, is something which emerges in this experience, and which therefore has a quite different status from 'mind,' even in the neutral monist's usage of that term. If monism is to be intelligible and effective its 'stuff' must be experience.

The antithesis between materialism and mentalism is analogous in some ways to that between realism and idealism, though the latter are perhaps more akin to epistemological theories than to those of metaphysics. The older form of realism regarded the so-called 'objects of perception' as real entities 'indicated' by such particular terms as 'chair,' 'table,' and so on. Modern realism, while tending on the whole to admit that ordinary physical objects are not real entities in themselves but symbolic constructions arising from sensory experience, replaces them as the ultimate real entities by the atomic sense-particulars of which it considers this experience to be made up. Modern realism tends, in fact, to logical atomism, and is open to the same criticisms, of which I have already spoken. Realism seems to me, indeed, to be based on an unsound theory of knowledge, of the kind to which I referred in Chapter II.[1]

The term 'idealism' has been used in various ways in application to metaphysical theories. It has been applied to the

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[1] See pp. 28 ff.

Platonic theory of Ideas; but with this theory I am not here concerned; having already considered it in another context.[1]

Again, there is the type of idealism developed by Kant and his successors, which emphasizes the part played by thought, not only in the manipulation of experience, but also in determining the very constitution of the 'object' which is 'known,' and by the synthesizing mental activity involved in the 'ideas' of the mind. I need not pursue here the criticism of this view —with its metaphysical sequel of the unknowable *noumenon*, or 'thing-in-itself'—which would follow from my general thesis, for this will, I hope, be clear from the previous discussions. Moreover, neither the Platonic nor the Kantian type of idealism is the direct antithesis of realism as here defined. This antithesis is most nearly exhibited in idealism of the kind which, so far as its coherent expression and development are concerned, originated with Berkeley.

The distinctive feature of Berkeleian idealism is its insistence on the fundamental unity of 'subject' and 'object' in cognition—that is, in both knowledge and acquaintance. This unity of what is at least formally a duality is the unity of what is sometimes called 'the mind' and sometimes 'experience.' Hence idealism of this type is closely similar to mentalism, if not in effect identical with it.

As I have said, the bases of realism and idealism are epistemological, and their antithesis arises from their difference of view in regard to the nature of cognition. For realism, subject and object are separate and independent—or relatively independent —entities, at any rate in the acquaintance involved in sense-experience, though in regard to such things as imagery the assertions of realism are more hesitant. For idealism, on the other hand, the unity of subject and object is indissoluble, and neither can exist without the other. The object is not something which is 'there anyhow,' of which the subject may become aware.

The weakness of idealism is that it tries to have it both ways.

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[1] See pp. 33 f.

While insisting on the reality of the distinction between subject and object, it nevertheless takes as its fundamental postulate a unity of subject and object which makes nonsense of any real distinction between them. The result of this is that in the development of idealistic theory there is a tendency for one of the pair to become absorbed in the other, and it is in fact the object which tends to be absorbed in the subject. In short, idealism reduces more or less to mentalism; all that exists is the contents of minds.

This tendency of idealism seems to me to be in the right direction; indeed, perhaps it tends that way inevitably because it *is* the right direction. But the difficulties of idealism as it stands arise as usual from the confusion between symbols and entities. The fundamental fact is the individual experience, and 'subject' and 'object' are convenient symbols arising from experience. As I have said elsewhere, I believe 'subject' to arise from the unity of the individual experience, and 'object' from the diversity of content of that experience. I am aware that I am here simply translating one symbolism into another, but for me the latter is more directly significant and intelligible, and therefore in that sense more fundamental.

At this point I will conclude my discussion of the main types of metaphysical theory. My consideration of each has been somewhat brief, for, viewed in relation to the main thesis of this book, the pros and cons become quickly obvious. I shall go on to develop what I find to be the most satisfying and intelligible metaphysical system. It is monistic and monadistic, and I shall call it 'monadism.' In the course of the discussion I shall deal with the last of the metaphysical antitheses to which I referred—namely, that between singularism and pluralism.

Monadism

When, as a metaphysician, I try to develop an adequate and effective symbol system I am necessarily within my own experience. My experience is the universe for me, my symbol-pattern weaving is part of it; it alone gives meaning to the symbolism, which must be capable of interpretation in terms of it. Like all other symbol systems, a metaphysics can only be judged by its consistency and by the effectiveness of the responses it evokes in experiential situations.

It is for this reason that I start from the definition that existence, or 'reality' if you like, is experience. The term 'existence' can of course be defined in other ways, but the definition I have given is more than a definition; it also gives *meaning* to the term 'existence.' The meaning of a symbol arises from the experiential situations in which it is used, or to which it is a response. By virtue of my definition, the meaning of 'existence' for me emerges from my whole experience—that is, from the totality of my experiential situations. It is for this reason—the fact that it carries its meaning immediately with it—that I find such a starting-point peculiarly intelligible and satisfying.

To say that 'existence' is experience is certainly not an incongruous usage of the term. A critic would have to show that there are other usages of the term which are neither incongruous nor meaningless. I suggest that any other usage of the term is strictly meaningless; for meaning arises from experience, and unless a symbol can be interpreted in terms of experience it has no meaning. Hence so completely general a term as 'existence' must be equated to 'experience' if it is to have meaning. I have already made relevant comments on this when discussing the usage of 'existence' adopted by some logicians.[1]

At this point it might perhaps be objected that my whole argument is circular, and my symbolism 'closed.' No doubt; but, as I have already pointed out, this is not an objection but rather the contrary. The criterion by which a symbolism should be judged is its effectiveness in producing eutony—especially, in this case, intellectual harmony and satisfaction—through response, the consistency of the symbol system itself being one necessary condition of this. Circularity only raises difficulties when we try to hypostatize our symbols as extra-experiential entities, or when we try to start from such entities instead of from symbols; whereas, if our efforts are to be effective we must necessarily begin, continue, and end with what *is*—namely, experience, which includes the occurrence of symbols. We do not, and cannot, 'explain' entities by other entities. What we can do—and all we can do—is to find the 'right' symbolism, that is, the most consistent, convenient, and effective symbolism for dealing with what is. 'Explanation' is a process of relating symbolisms, especially the unfamiliar to the familiar.

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[1] See pp. 271 f.

The next step for me, as metaphysician, is to characterize experience symbolically. The primary symbols here are such terms as 'my' and 'mine.' Experience evokes such phrases as 'my experience,' and the symbol 'I,' with its associated symbols and symbol patterns. As I have previously said, this symbolic characterization—the so-called 'subject' aspect of experience—arises from what I have called the 'unity' of experience, the meaning of the term 'unity' arising from certain aspects of experiential situations. This unity of experience which 'I' have and which is 'mine' I call a 'monad.' I am here relating my fundamental metaphysical symbols partly through definition, but the way in which they are thus related results from the *meaning* of the respective terms arising from the experiential situations which evoke them. As I am here dealing with metaphysical ultimates I cannot argue the basis of my system further, but can only present it in some such manner as the foregoing. I find the symbol pattern which constitutes it to be meaningful, intelligible, and satisfying in a manner and to a degree which I find in no other basic metaphysical symbol pattern.

To say that 'my' experience is 'for me' the universe is of course a tautology. Nevertheless, it expresses the fact that the monad is unitary, and a complete unity, in that it is boundless as, by analogy, the surface of a sphere is boundless. Statements about things 'outside' it are strictly meaningless as they stand and must be replaced by statements in symbols arising within it, and therefore having meaning. The metaphysician inevitably finds himself in the position where he has to make this substitution, since he is himself part of the reality he is investigating.

Situations within the monadic experience evoke the symbol 'agency' and, further, such symbols as 'self-agency' and 'other-agency,' and themselves provide the meaning of these symbols. 'Other-agency' arises in situations where there are occurrences unassociated with the sense of self-agency but associated with a sense of what is called 'constraint,' or 'imposition,' or 'impact,' the last term applied in such situations as, for example, those constituting relatively passive perception. The experiential situations in which the agency symbolism emerges are the meaning of 'communication' or 'interaction' with 'others,' and, in their totality, they are the meaning of the 'existence of others.'

I come here to a fundamental point—namely, the extension of the meaning of 'existence of others.' As I pointed out when first discussing 'meaning,'[1] the meaning of a symbol or symbol pattern includes the imagery which becomes associated with it, this imagery itself forming part of experiential situations. The imagery associated with 'existence of others' is that of my own monadic experience—though this imagery is necessarily limited. Thus I have different types of experience, and I am also acquainted, by experience, with the cutting off of some types. I therefore give meaning, by imaginative analogy, to the 'existence' (that is, the 'experience') of others, but only up to a certain point; beyond this point, the experience of others has no *meaning* for me. Nevertheless, there is material here for a further extension in the basis of my metaphysical system.

In brief, I regard reality as consisting of monads, interacting and intercommunicating. This is a symbolic statement in a metaphysical symbol system. But its terms have meaning in the way I have just described, and I find the resulting system consistent and effective in the responses it evokes in the relevant situations in my experience. Nevertheless, the meaning of the terms employed is limited in the sense I have mentioned, while statements about reality other than in terms of monadic experience necessarily have no meaning at all. My system is therefore monadistic, and monistic, in that it takes the stuff of existence or reality to be one—experience.

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[1] See pp. 98 f.

There is a distinction in detail between the meaning of 'my existence' and the meaning of, say, 'the existence of John Smith.' The meaning of 'my existence' is simply experience, it being a fact that experience, in all its aspects and situations, evokes such symbols as 'my' and 'mine.' The meaning of 'the existence of John Smith' is certain experiential situations involving sensory experience giving rise to such phrases as 'the behaviour' or 'the utterances,' or the 'writings' of 'John Smith,' together with associated imagery, in *my* experience, all giving rise to the phrase 'the experience of John Smith.'

Will the basic metaphysics I have stated cover and integrate the various symbol systems of knowledge, especially those of physics, biology, and psychology? I find no difficulty here. Thus for me—and 'for me' is, for the metaphysician, strictly redundant, since it is necessarily integral in his data—the field of physics, for example, is certain types of observational experience which include the sensory content comprising the speech, records, and writings of others. The development from this of a consistent and effective physical symbol system is neither dependent on a monadistic metaphysics nor in any way incompatible with it. The same is true of biology and psychology, together with such systems as those of ethics and æsthetics, which, while they have their own peculiar symbols, are nevertheless dependent in some respects on the three fundamental sciences I have mentioned. Thus, for example, it would be pointless and fruitless to attempt to frame an ethics taking no regard whatever of psychology and biology.

I hope what I have said in previous chapters about particular symbol systems or branches of knowledge will make clear their compatibility with monadism, though they do not necessarily require in themselves such a metaphysics; however, when we come to consider the integration of the various symbol systems the nature of the basic metaphysics adopted becomes more directly relevant.

It is true, of course, that up to a point the integration of the symbol systems can—and, indeed, must—be carried out by modifying them and adapting them to one another without reference to a particular metaphysics. But this is only a beginning, and beyond that point it is the function of metaphysics to try to complete the integration. How far this can be done will depend on the metaphysical system adopted. For example, materialism proved quite inadequate as a metaphysics, not only because it was founded on hypostatized symbols, but also because, even granted its supposed entities, it was quite unable to integrate physics, biology, and psychology. Its attempts to absorb the categories of life and mind were artificial and patently sterile, for they begged all the fundamental questions.

As a contrast, the most important and satisfying feature of monadism, combined with a theory of knowledge such as I have presented, is that, instead of basing itself on the postulation of entities supposed to correspond to symbols emerging in experience and then trying to 'explain' the facts of experience in terms of these, it *starts from* the facts of experience—which are the only *facts*—and seeks to integrate the various symbol systems, which are themselves parts of experience. If the three sciences in question are considered on this basis, therefore, whereas physics comes first in order of priority for materialism, psychology comes first for monadism, biology occupying the intermediate position in both cases. Psychology deals with every type of experiential content, so that what is indicated is an attempt to exhibit experiential situations which evoke the symbols of physics and biology as examples—sometimes, perhaps, as limiting cases—of experiential situations evoking the symbols of psychology. In an older terminology one would say that, instead of trying to 'explain' 'life' and 'mind' in terms of 'matter,' one should try to explain matter and life in terms of mind.

It would be beyond the scope of a book like this to develop in detail the integration of physics and biology with psychology. It will be enough for my purpose if I can show that this integration is possible by indicating the lines on which I would approach it. They are by no means novel, and I have already made some reference to them.

Psychology deals with the experience of the psychologist himself, by means of introspection, and with the observation, within the experience of the psychologist, of the *behaviour* of others. In imagination the psychologist associates with this behaviour experience analogous, to a greater or lesser degree, to his own. In other words, he can postulate 'minds,' analogous to his own mind, associated with other organisms. This is an extension of the symbolism of psychological introspection.

The matter is fairly straightforward in considering other human beings and even the higher animals; but imagination progressively fails, at any rate in detail, as we descend the scale of organisms. The experience of a horse or dog may have some imaginal meaning for us, but what of the experience of a fly or a jellyfish?

The answer lies in the continuity of types of organism. Within the vast range and complexity of organic life there are no dividing-lines so sharp as to make us feel that they separate quite different orders of fact. Therefore, although the experiences of some organisms may have little or no imaginal meaning for us, we can nevertheless extend to them the general symbolism of experience—a process aided by the fact that, even in the behaviour of the lowliest organisms, we can observe something analogous to certain aspects of our own behaviour, especially in regard to routine and repetitive processes, and can apply to it the eutonic-dystonic symbolism of adjustment as the basis of behaviour. I therefore think that monadism can effectively cover and integrate psychology and biology without raising any difficulty in principle.

We are, however, left with the distinction between the organic and the inorganic—the 'animate' and 'inanimate'—and have to consider whether this distinction is irresolvable or whether, on the other hand, fundamental continuity holds here as elsewhere. As a matter of fact, the most recent work in the sciences—and especially in such sciences as bio-chemistry—seems to be leading in some directions towards a blurring of the distinctions; but, even if we take no account of this, I do not think there is much difficulty here from the point of view of monadism. The symbolisms of the organic and the inorganic, the animate and the inanimate, arise from varying types of pattern in individual experience. The question for metaphysics is, then, whether we can absorb the symbolism of the inorganic in that of the organic—and I have already given reasons why I regard the converse process, as attempted by materialism, to be impossible. We may attempt this integration of symbolism by considering whether those experiential patterns from which the symbolism of the inorganic emerges are, not fundamentally different in type from those patterns which give rise to the symbolism of the organic, but limiting cases, as it were, of the latter.

If we consider the behaviour of those material bodies which we regard as inorganic and inanimate I do not think we find anything which can be held to be strictly discontinuous with the behaviour of organic and animate bodies. Within the organic process-patterns of experience there is a great variety, though without discontinuity, of *tempo* and rhythm. As we go 'down' in the scale of organic life we find in behaviour a tendency to a steadily increasing degree of routine and repetition in response, and a corresponding diminution in variation and flexibility. We can, I think, without intellectual inconsistency or dissatisfaction—*i.e.*, without symbolic disharmony—regard this tendency as reaching towards its limits in the experiential patterns of the inorganic. It is for this reason that the 'laws' of physics are in general more precise than those of biology and psychology, and the behaviour of inorganic bodies in general more easily predictable than that of organic bodies; nevertheless, there is no fundamental discontinuity here, though there are wide differences of *tempo* and rhythm in some respects between some parts of the organic field and some parts of the inorganic field.

I conclude, therefore, that physics, biology, and psychology, as symbol systems emerging in monadic experience, can be fully integrated in principle, though we have not yet reached a stage at which this integration can be completed in detail. It is not within the scope of this book to consider the application of this conclusion, on the basis of monadism, to particular problems involving the relation between the sciences—such, for example, as that of body and mind—though I have discussed these elsewhere.[1]

Returning now for a moment to the three types of antithesis in metaphysical systems to which I have drawn attention, it is clear that monadism leans towards mentalism rather than materialism, and towards idealism rather than realism. There remains the antithesis between singularism and pluralism.

'Singularism' is the view that there is only one existent entity, other supposed entities being regarded merely as 'appearances,' or 'attributes,' or 'modes' of the one, independently of which they have no existence. 'Pluralism' is the view that there are many existent entities, each existing in some sense—usually not very clearly indicated—independently of the others. It will be seen that these statements as they stand are really no more than definitions relating the terms 'singularism,' 'pluralism,' 'existence,' and so on to one another. There are two questions for the metaphysician—namely, what are the *meanings* of the words 'singularism,' 'pluralism,' and

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[1] See, for example, *Spiritual Pluralism* (Chapters VII and VIII) and *The Supremacy of Spirit* (Chapters IV, V, and VI). I continue to adhere in principle to what I have said there, regarded as a symbol system, though I should now modify its statement in some respects which will be apparent from the contents of this book.

'existence' in terms of his experience, and, in view of these meanings, what is the possibility of one of the above statements, or a variant or combination of them, being regarded, not merely as a definition, but as one of the principles of a metaphysical system.

For me, in the rôle of a metaphysician holding the theory of monadism, the answers to these questions are clear. Existence is experience, and my experience is one—a unitary whole. At the same time, the existence of others has meaning for me, arising from my experience, in the sense I have previously described. Therefore, for monadism the antithesis between singularism and pluralism is not an ultimate one; it is resolved, though in a somewhat modified form of statement. The statements "Existence is one" and "There are many existent entities"—the first being a modified statement of singularism—both have meaning for the monadist, and, considered together, they are not inconsistent symbolic expressions in the symbol system of monadism. There is, however, a further question as to whether among the 'other' existent entities there is one or more who is peculiarly characterized, and stands in a peculiar relationship to the rest. This question must be related to the experience of the metaphysician. It is, in fact, the problem of God, and I will conclude this chapter by considering it, together with one or two other problems commonly associated with it.

The Existence of God

The question for the metaphysician is as to what in his experience would cause him to say "There is a God" or "God exists"; in other words, as to what for him is the meaning of 'God,' and whether it be such as to evoke the utterances mentioned.

The question of the meaning of 'God' is an important one. Evidently the meaning of the term varies widely from one individual to another. For example, the kind of things happening in his experience which would cause a child to say, in effect, "God exists" would be very different in many respects from those which would cause the mystic to say the same thing. There will in fact be broad differences in the meaning of 'God' from race to race and sect to sect, and more detailed ones from individual to individual.

Can any common core be traced in the various meanings? If so, it is likely to be embodied in a definition relating 'God' to other terms having approximately the same meaning for all, or most, individuals.

A dictionary definition of 'God' is "Superhuman being worshipped as having power over nature and human fortunes." [1] This definition satisfies the conditions reasonably well as regards both inclusions and omissions. It is true, I think, to say that in all, or nearly all, cases God is regarded as superhuman—though the interpretation of this may vary somewhat in detail—as being the object of worship or of some cognate attitude or activity, and as having power over Nature and human beings. On the other hand, there is much disagreement on such attributes of God as omnipotence, omniscience, and beneficence, which are omitted from the definition.

There are, however, still some difficulties even at the level of basic definition. What, for example, is the character of God's power over Nature and humanity? Does it consist in the possibility of interference with the working of the general 'laws' concerned with the behaviour of material bodies and human beings and other organisms, and with the interrelations of these?

Whatever are the various meanings of the term 'God,' and whatever congruous general definition results from them, it is in any case evident that the problem of God is closely connected with that of the unity of reality. Perhaps, therefore, it is best to approach the question metaphysically by considering the nature of the principle of unity, which, as I have pointed out, is consistent with monadism, and, indeed, necessary to its symbolism and imaginal meaning as to that of other systems. Then we may inquire whether this principle is to be regarded as itself monadic, if so, how it is to be characterized, and whether, in the result, the term 'God' is congruously applicable to it.

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[1] See *Pocket Oxford Dictionary*.

It seems clear to me that metaphysically we must regard reality as a unitary *existent*; that is essential to metaphysical symbolism. Any symbolism in terms of entirely separate and disconnected real entities would not only fail to cover the facts of experience but would not be intelligible at all in relation to experience. Reality is disclosed to the metaphysician in his experience—indeed, for him it *is* his experience—and the characteristics of experience, to which I have already frequently referred, are such as to require a symbolism involving the unitary nature of reality. It is significant that we so often speak of reality as the 'universe.'

If reality is a unitary existent it follows from my general thesis that it must necessarily be a monadic experience or monad. For our metaphysics we must then choose between the symbolism of solipsism and that typical in kind of theism or absolutism. For reasons given earlier in this chapter [1] I have suggested that solipsism is unsatisfactory.

The question then arises as to the nature of the relation between the pluralistic aspect of monadism, with its many individual monads, and the singularistic aspect, with its symbolism of reality as a unitary existent, or monad.

At this point it is important for the metaphysician to remember once more that his metaphysics is a symbolism, the meaning of which, including its imaginal developments, arises solely in his experience. Now, this experience itself evokes a symbolism which is partly singularistic and partly pluralistic—singularistic in so far as the monadic experience is a unity, pluralistic in so far as the monadic experience is characterized by diversity of structure, expressed symbolically in terms of such elements as sensa, images, feelings, volitions, movements, and so on, and their interrelations. The *meaning* of the 'diversity of structure' of experience is that experience in fact evolves this kind of symbolism. The universal monadic experience will itself be characterized by existential unity and structural diversity, and we might then suppose that the elements of the latter consist in the plurality of individual monadic experiences. This is a symbolism the effectiveness of which may become clearer in the sequel, but I shall not develop it in further detail here.[1]

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[1] See pp. 268 ff.

I shall call the relation of the universal monad to the individuals of the plurality of monads, as just described, 'immanence.' But the universal monad is not the mere collection of the individual monads of the plurality, any more than the individual monad is the mere collection of the psychic elements which, in our symbolism, make up the monadic experience. The universal monad is a unitary experience synthesizing and integrating—or, to avoid begging questions at this stage, I had better say *tending* to synthesize and integrate —the individual monadic experiences. I shall call this relation 'transcendence.' I think that my use of 'immanence' and 'transcendence' in this way is not inappropriate or incongruous with the general—if somewhat vague—use of those terms. I suggest, too, that we can appropriately use the word 'God' for the universal monad, since the minimal definition of the term is satisfied. The universal monad is certainly superhuman in a congruous sense, and it certainly has *some* power over 'Nature' and 'humanity,' a point which I will now consider.

A characteristic feature of monadic experience is that of agency—self-agency and other-agency—and we speak of having some 'power' over our environment, which includes human and other organisms, and of our environment's having some 'power' over us. The power of the environment over the individual monad consists in modifications of the monadic experience which do not arise from self-agency; and, similarly, we regard the power of the individual over the environment as consisting in both the modification of the individual's own experience and the modification of other monadic experiences. There is, in fact, what may appropriately be called 'interaction' between the individual monads or monadic experiences, for the actuality is what happens in these experiences. We may suppose that there is an analogous interaction between God's experience and the experiences of the individuals of the plurality of monads. I shall later consider the nature of this interaction in terms of its results in experience.

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[1] For a fuller discussion of this type of symbolism see *Happiness, Freedom, and God*, Chapter VI.

The first thing to remember here is that most of the sequences of events which occur in the individual experience are orderly, routine, and repetitive, and are covered symbolically by the 'laws,' or general principles, of physics, biology, and psychology. But there is no impossibility as regards exceptions, and the 'laws' themselves are continually modified as various new possibilities of experience emerge. There is much which we experience now which a hundred years ago would have been regarded as 'miraculous,' or 'contrary to the laws of Nature.' Novelty as well as repetition is a characteristic of experience, and the possibilities of experience are endless. Hence there is no difficulty about the possibility of God's so-called 'interference' with 'natural laws'; indeed, the questions which are sometimes asked in this connexion are non-significant. For reality is experience, and *any* results of God's action in terms of experience are just part of the nature of reality.

There are, however, wider questions which are undoubtedly significant—and urgent. Is God omnipotent? And is He beneficent? I should say without hesitation that, unless we use one or both of the terms 'omnipotent' and 'beneficent' in an arbitrary or incongruous way, it is impossible to maintain, in the light of the facts, that God is both omnipotent and beneficent. For whatever may be the part—perhaps the necessary part—played by conflict and suffering in human existence, no being who was both omnipotent and beneficent could possibly acquiesce in the horror, the misery, and the degradation which characterize certain aspects of life. There is, I believe, a significant sense in which God may be said to be necessarily beneficent, and to this and to the general issue—the problem of evil—I shall shortly refer; but I think we must rule out the possibility of attributing omnipotence to God. In any case, it is difficult to give any precise definition to the word 'omnipotence' in terms of meaningful symbols without producing all kinds of well-known paradoxes in connexion with the usage of the symbols concerned.

Can God be appropriately said to be 'omniscient'? If we relate that term to acquaintance the question would be whether God is acquainted with the whole of reality—that is, with all that happens in the individual monads. If we relate the term 'omniscient' to knowledge—that is, to symbol systems—the question would be whether God is acquainted with a completely comprehensive and completely true symbol system arising from experience and always evoking appropriate responses—that is, responses productive of harmony in experience. In view of the nature of the relation of God to the individual monads, of which I have already spoken, I should say that the question could in the first instance be answered significantly in the affirmative; but that in view of the nature of symbolism and its variety in different individuals and different groups, together with the fact that, in a fundamental sense, truth may be said to be relative, I doubt whether it is in the second instance significant. If, however, we limit our consideration to God's own experience, and in so far as we may suppose that that experience includes a symbolic aspect, I should say that the answer would again be in the affirmative.[1]

Evil, or dystony—and I prefer this more general term—arises in our own experience through conflict, conflict between our own various impulses and conflict between self-agency and other-agency. God shares in this dystonic experience in virtue of His immanence. Now, it is an essential characteristic of monadic experience that self-agency is directed to the maximizing of eutony and the minimizing of dystony. Hence God's own agency is directed to removing the conflict in His own experience, which involves removing it from the experiences of the plurality of monads. This is what I meant when I said that God was *necessarily* beneficent. Reality can then be regarded as a process of striving for adjustment in monadic experiences, in which agency is directed to increasing eutony and diminishing dystony. To the degree in which this aim is achieved the process may be said to exhibit 'progress.'

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[1] For a fuller consideration of this point see *Happiness, Freedom, and God*, pp. 160 *f.*

There is therefore no 'problem of evil' in the traditional sense, for this 'problem' arose from the irrational attempt to attribute to God simultaneously characteristics such as 'omnipotence' and 'beneficence,' which simply could not be fitted into a consistent symbol system applicable in dealing with the facts of experience. The real problem is quite different, and is twofold. On the one hand, there is the logical or symbolic problem of making the occurrence of evil intelligible by weaving the term 'evil' and its associated symbol patterns consistently into the wider symbol system covering the nature of experience in general—and this I have tried to deal with in the foregoing. On the other hand, there is the practical and psychological problem of determining action most conducive to progress, as I have defined the latter. The second is a continuing problem in human life, the solution of which calls for all the resources of experience in general, and of experiment and sympathetic imagination in particular.

We must always come back in the end to the question of what the 'existence of God' *means* in terms of the experience of the individual—or, in other words, what sort of things happening in his experience evoke from the individual the statement "God exists." Let us for the moment compare "God exists" with, say, "John Smith exists." The second of these statements is evoked by the occurrence of certain types of sensory experience, those associated with patterns evoking the symbol 'human body' or 'human organism.' In general, there is nothing like this in the case of "God exists," though some would maintain—and this is the basis of certain religions—that at particular times and places there have been experienced events of an unusual character, associated with what on other grounds would be regarded as a human organism, which give meaning to the statement "God exists." For the vast majority of mankind, however, any meaning this statement may have arises from experience other than that associated with the observation of a particular human being.

The experience just referred to takes the form, for example, of all those occurrences from early childhood onward, which take place in a religious context, in particular religious observances in which the individual concerned has played a willing or unwilling part, together with the religious writings and utterances of others and historical records. In some cases there will be added to this a particular type of 'mystical' or 'religious' experience which is regarded as a form of direct communion with a superhuman being.

It is clear that variation in meaning from one individual to another—which is necessarily characteristic of all symbols—will be particularly marked in the case of the symbol 'God' and the statement "God exists." This is, I think, one of the main reasons why arguments about religion are apt to be so bitter and inconclusive, and to give rise to those cruel conflicts to which history bears witness.

The questions the metaphysician has to try to answer are those as to what the meaning "God exists" bears *for him*, and the possibility of his weaving this statement, with its associated symbolism, consistently and effectively into his general metaphysical symbol system. For me the meaning of "God exists" is constituted by the unity of reality disclosed, as I think, in my experience, and from the sense—a sense often dim, and always varying—of an agency operating universally over and above self-agency and the many particular other agencies which are expressed in the symbolism evoked by my experiences. I find a fuller meaning in what is symbolized in this manner in my experience of the universal striving—successful and unsuccessful—of the many individuals towards self and mutual adjustment. This involves the whole of reality, and gives rise to—or is at any rate accompanied by—the sentiment of love and its associated egoistic-altruistic sentiments—sentiments which when fulfilled produce supremely satisfying forms of experience, and when frustrated result in deep bitterness and misery.

Beyond what I have just said, developments in the meaning of 'God' are imaginal, and of a kind I have previously indicated, while the integration of a theistic symbolism, based on this meaning, into the general symbolism of a monadistic metaphysics takes the form which I have also already described. I will not pursue any further here the question of the existence of God, for the main purpose of this chapter is to discuss the general nature of metaphysics, and not to develop a metaphysical system in detail. But I believe that the kind of metaphysical symbolism I have suggested in this connexion can be effectively applied to a variety of types of experience—such, for example, as psychic phenomena, in regard both to the individual himself and to his relations with other individuals, and also those aspects of experience involving conduct and behaviour which come within the scope of ethics, and with which I have dealt at the ethical level in an earlier chapter. I have discussed developments of this kind elsewhere.[1]

There remain, however, two problems which, in view of their prominence in the history of metaphysical thought, should receive some mention. These are the problems of Creation and Immortality.

I shall say little about the first, for I do not think there is really a significant problem here at all. Creation involves the existence of time as something independent of the individuals composing reality, 'in' which these individuals exist. But it will be clear from earlier chapters that I regard this way of looking at time as altogether invalid. Time is not something in which the monads exist; the temporal symbolism is something which arises within the monad—that is, within the individual experience. There can be no question, therefore, of the monad God's 'creating' the individuals of the plurality of monads. The symbolism of the relation of God to the Many does not involve temporal symbolism at all.[1] Sometimes, however, God is spoken of as 'sustaining' the universe as well as creating it. Whether or not one says that the kind of interrelation I have suggested as subsisting between God and the Many is such that there is a significance sense in which God might be spoken of as 'sustaining' the universe is really an arbitrary matter, but I do not think such a statement would be altogether incongruous.

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[1] *Cf.*, for example, *Happiness, Freedom, and God*, Chapters VI and VII.

Passing on to the question of Immortality, I would first point out that here again the issue has been much confused by an invalid use of temporal symbolism. Monads might perhaps be called 'immortal' in that they exist and are non-temporal, but to ask whether monads exist endlessly in time is to ask a question without significance. The substantial question involved here is rather whether there is such a thing as what is commonly called a 'future life.' This is an empirical question referring to possibilities of experience, and the evidence relevant to it must be sought within experience.

From the observer's point of view the death of an organism involves certain changes in that pattern in the observer's experience which gives rise to the symbolism of a monad associated with a body. The question is whether there is anything in the experience of the observer 'after' (in the time-series within the observer's experience) the occurrence of the 'death' of the organism concerned which can be most effectively covered by a symbolism involving the existence of the monad associated with that organism. Experience relevant to this is dealt with in the investigations of psychical research, and the present position might, I think, fairly be described as one of inconclusive results. Whether or not a symbolism involving a 'future life,' with its associated symbol pattern, will ultimately prove to be the most effective way of bringing all the relevant experiential facts into harmony with one another, and of harmonizing them with experience in general, in the light of the metaphysical symbolism arising from the latter, is still an open question.

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[1] See also *Happiness, Freedom, and God*, pp. 168 *ff*.

There are nevertheless certain general metaphysical considerations relevant to this question which have some persuasive and, perhaps, even logical force. For the metaphysician, as for any other individual, the terms 'my non-experience'—and, therefore, 'my non-existence'—are strictly devoid of meaning, for meaning arises within experience. This is not just playing with words, for it is because of this fact that the metaphysician is unable to frame a consistent meaningful symbolism which includes expressions asserting or implying his own non-existence—that is, that 'his' experience is not. Thus, in the temporal symbolism arising in my experience, I associate 'dates' with events occurring in that experience, and I could significantly make some such statement, for example, as, "There is no event in my experience associated with the date A.D. 2000," the "is" here being a non-temporal logical sign. This statement might be—and very probably is—true, or it might be false, but it says nothing about my non-existence; and if I instead say, "I shall not exist in A.D. 2000," or, "I shall not be experiencing in A.D. 2000," I shall have made a non-significant statement, for such use of temporal symbolism is invalid, being non-congruous with the way in which this symbolism arises within my experience, and therefore inconsistent with the general pattern of my temporal symbol system. I conclude again, therefore, that questions about a 'future life' are not questions about existence and non-existence but about the possibilities of experience, and so are empirical questions, on which evidence must be sought within experience.

Here I will end this chapter, in which I have developed my view of the nature of metaphysics, sketched in outline the general pattern of what I personally find to be an intelligible, consistent, and satisfying metaphysical symbol system, and, in the course of this, drawn attention to certain points which seem to me of importance in connexion with particular problems traditionally included in the field of metaphysics. It only remains for me to consider the relevance—if any—to life itself of what I have said in this and previous chapters.

CHAPTER VIII

Philosophy of Life

It has been held by many people in every age that philosophy should offer practical guidance in ways of living; indeed, this has often been regarded as the essential function of philosophy, which, in so far as it fails to discharge this function, is felt to be a barren and profitless pursuit. During the present century, however, there has been a tendency—or at least, an apparent tendency—for the study of philosophy to stray further and further from the concrete and practical into the realms of the abstract, and to become more and more concerned with the purely verbal. I think, however, that it is true to say that, although complaints that the philosophers have now little or nothing to offer in the way of guidance for living have some foundation, that severe scrutiny of our usage of words and other symbols which is the most striking feature of current philosophical thought has itself forced us to realize how close is the connexion between our usage of symbols and our way of living. The beliefs—fragmentary and systematic—which characterize our thinking are themselves constituted by symbols and symbol patterns which, through the responses they evoke, profoundly influence our conduct and behaviour. It is significant that, in the most recent discussions in the philosophical field, the study of semantics and its associated problems has been paralleled by a thorough-going review of the foundations of ethics, in which consideration of the usage of words has played an increasingly important part.

There are really two questions involved here. The first is whether philosophy is in fact divorced from the practical issues of life. The second is whether it is appropriate that philosophy *should* be divorced from these issues.

I have already made some comments on the first question in the preceding paragraphs, and the remainder of this chapter will be directly relevant to it. Although much that I have written in this book may at first sight appear to be remote from life, I hope to show that its substance has in fact a direct and vital bearing on the problems of living; for the answers we give to the questions which have been raised, and our attitude towards the various issues involved, must influence profoundly the way in which we conduct our own lives, and in particular, our way of approach to the practical problems of living in harmony with our fellows.

As for the second question, it is of course open to anyone to delimit arbitrarily what he holds to be the proper field of philosophy, providing he makes his intention clear; but it nevertheless remains true that, both in its derivation and in its history, philosophy—or, if you like, the study of those who have by common consent been regarded as philosophers—has concerned itself, not merely with the framing of abstract systems, but also with the practice of living. Philosophy may sometimes be defined as the investigation of the ultimate nature of reality, but it is also quite properly described as the search, on the most comprehensive scale, for knowledge and—more important —wisdom; and the search for knowledge and wisdom is in the end intelligible and justified only in the application of its results to the art of living.

The Aim of Human Thought and Activity

At the outset of this discussion of a way of life I should like to emphasize again a point I have already made in various contexts—namely, that the only intelligible aim of existence is the achievement of as fully satisfying as possible a state of being, or, as I should prefer to say, experience. Nothing else seems to me to make sense in the end, and attempts to challenge such a statement as I have just made can be shown either to fail on both rational and practical grounds or, if carried through to their final conclusion, to reduce to statements equivalent to the one which is being challenged.

Experience which is as satisfying as possible is of course experience characterized by the greatest possible measure of eutony. 'Satisfaction' is, indeed, a eutonic term. But in life as it is—at any rate, in this world—perfect eutony with complete absence of dystony is unattainable. We must often accept a measure of dystony in some respects in order to achieve eutony in others, but we strive in fact—and it is the only intelligible aim of our striving—to minimize the one and maximize the other. We shall not achieve this object, however, if we have regard only to the immediate and transitory situation. As human beings we are able to reason and look ahead, and our goal is the attainment of experience the eutony of which is not only maximized but as stable and enduring as possible. Our endeavours can be guided by experience itself, and in particular, by controlled experience in the form of experiments in ways of individual and communal living.

It may be objected that to say that our behaviour is—and must be if it is to make sense—directed to the achievement of satisfying experience is a mere tautology. Certainly it is a tautology in the sense previously described—namely, that the consistent symbol system of which it is a part, and which determines the definition and usages of the terms in it, is closed. But the point is that any other statement of principles for the determination of conduct—for example, in terms of codes based on something other than the tonality of experience, such as the 'moral law'—cannot be woven into a consistent symbol system without doing violence at some point or other to the general usage of the terms employed. Tautology is thus only avoided here at the expense of validity—that is, consistency and effectiveness—and I use the term 'validity' here rather than 'truth' because many of the statements involved in this context are in the form of injunctions or prescriptions, for which the terms 'true' and 'false' are not appropriate.

As I have said before, reality is not something the nature of which is beyond our immediate apprehension but which can be conveyed to us in some ways and to some extent by symbolism; it is something to be actually lived or experienced—in fact, it *is* experience. Therefore the only matter of concern to us in the end is the nature of our experience, and in particular the tonality, or 'feeling-tone,' of that experience, which is the criterion of successful living. But, for reasons I have given, the ensuring of eutonic experience for other people is equally a matter of prime concern to us, for the nature of our personal and social relations is such that our experience is closely and continually bound up with that of others, and the two cannot be separated in thought or in practice without injurious effects on both. The selfish individual defeats his own end, for he fails to achieve anything approaching that full measure of happiness and satisfaction for which, consciously or unconsciously, he is ever striving. Egoism and altruism are therefore not contradictions but complementaries, and each is an end which is at the same time a means to the other.

By the same token, what matters in the end is not what we believe but what we do and how we behave, and how we cause others to feel and behave. For beliefs are symbol systems, and their importance lies not in themselves but in the behaviour-responses they evoke in us. It is their *meaning* for us which matters, and this determines the responses they evoke. But similar symbols have different meanings for different people, differences which may be small or great; while on the other hand, the general behaviour of people holding widely different beliefs, as expressed in symbols, may nevertheless be fundamentally similar and harmonious. For example, the belief-symbolisms of the Christian and the humanist differ considerably, but their behaviour in most life-situations—in particular those involving an ethical element—will nevertheless rarely conflict seriously. It is harmony of behaviour and not similarity of belief which counts in the actual business of living, and it was for this reason that I suggested earlier that increasing harmony of behaviour in the individuals of a community—ultimately in the world-community—was perhaps the most appropriate criterion of 'progress' in that community. To avoid misunderstanding, however, I should perhaps add that I am using 'behaviour' in a wide sense, and should regard as the very reverse of harmony of behaviour the imposition by some individuals on others of modes of conduct which, though they might result in a mechanical kind of efficiency judged by material standards, would secure this at the expense of the happiness and satisfaction of those concerned.

This question of the meaning of symbols and its relation to behaviour—which is bound up with questions relating to communication, definition, and truth—is vital, and I shall consider it further later; however, I would first like to discuss briefly certain general points in relation to philosophy of life.

Philosophy of Life

A philosophy of life is in itself a symbol system, but its expression and effect lie in the pattern of actual practical living to which it gives rise, and in the tonality of the experience in which this is embodied. If it is to be adequate it must be comprehensive, for in our living we have to come to terms, not only with ourselves and with our fellows, but also with the universe at large. Life consists, in fact, of an attempt to achieve a *modus vivendi*—an inner and outer adjustment—in which eutony is maximized and dystony minimized.

By virtue of its comprehensiveness, a philosophy of life, together with the way of life which results from it, necessarily includes what is properly called a 'religion'—namely, some kind of belief as to the nature of reality as a whole and the place of the individual in this whole, with the kind of relationships which this involves. I shall return to this point later.

In the result a philosophy of life is a faith, but if it is to be intelligible it is not a faith in the existence, for example, of a certain entity or entities, but rather one in the *possibilities of* *experience.* In other words, faith is, if it is to be meaningful and effective, a belief on the part of the individual in what will, or is likely to, or might, actually occur in his experience, either in this or in a 'future' life; and a belief, based on experience, as to the influence of the way of life he adopts on what will actually happen in his experience. The finest things in life are not so-called 'objective values'—whatever may be the significance, if any, of that form of words—but certain types of experience.

In attempting to work out a philosophy of life in greater detail one must, however, take account of certain matters of fundamental importance, particularly those involving communication between individuals and those concerned with ethical situations, and to the consideration of these I will now turn. I think it will be clear that views such as I suggest do no violence to those *ideals* of conduct which are characteristic of our civilization, even though conformity to such ideals is in no way a *sine qua non* of truth or validity. The principles involved in these views provide, I believe, an intelligible justification of our ideals of a kind which is—and can be—provided in no other way. Moreover, they involve an approach to—and an attitude towards—human problems different in many respects from that resulting from the traditional creeds and codes which are commonly held to be the bases of our ideals, and the difference is such as to be conducive towards a greater measure of happiness and well-being for all concerned. I am aware that I am here applying the very criteria which result from my argument, but this fact itself, by reason of the implication of self-containedness, consistency, and comprehensiveness in the system proposed, demonstrates the ability of the latter to stand on its own without appeal to external—and in themselves unintelligible—authorities or sanctions. It is for reasons such as these that I believe that the adoption of the principles I suggest would provide a chance of realizing those ideals which the traditional supporting arguments and beliefs have so patently failed in general to bring about in practice, or to bring within even distant sight of attainment.

Communication

Human beings communicate with one another through the symbolism of language, spoken and written, and gesture. Their social and communal life is very largely determined by —in fact, it largely consists in—their responses to symbolism. Hence the question of the meaning of symbols, especially the meaning of words, is all-important.

I have already given in some detail reasons why the *meaning* of a symbol or symbol pattern is inevitably different for different individuals; the nature and degree of difference varies very widely with the field of symbolism involved, but some difference there must be. As this is a fact there is nothing to be done about it as such; the important thing is that it should be recognized, accepted, and allowed for. I think there is little doubt that the existence of these differences of meaning is quite insufficiently realized, and that where it is dimly realized its extent, and the consequences which follow from it, are quite inadequately comprehended. This is, I suggest, one of the main reasons for the misunderstanding and conflict apparent in the world to-day, both between individuals and between groups.

If, however, the fact is recognized what can be done to remove ts present unfortunate results? In the first place, the immediate effect on conduct of the recognition itself tends to remove some of these results. If we realize that other people are using words with meanings different in some degree from the meanings they have for us we are the better able, through patience and tolerance, so to act as to make progress towards the achievement of that mutually harmonious behaviour which is all that matters in the end for successful communal living—and which can undoubtedly be achieved to an indefinite extent in spite of differences in the meaning of symbolism.

There is something else we can do—namely, secure agreement on *definitions* and other rules for the translations of symbols and symbol patterns into one another. We cannot secure agreement on *meanings*, for here it is not only symbols that are involved but also the relation of the symbolic to the non-symbolic, consisting in symbolic response to non-symbolic experience and subsequent non-symbolic response to the symbols themselves. But we are not under this limitation in the case of definition and rules of symbolic translation. Here we are concerned only with symbols, and agreement is possible.

Now, although it is true that we may—and, so far as we can tell, shall—have agreement on definition without agreement on meaning, and also, perhaps, though we cannot confirm this, sometimes have different people using different symbols with the same, or very nearly the same, meaning, nevertheless our chances of achieving mutually harmonious behaviour will be much increased if we can at any rate agree on what symbolic patterns we are going to regard and use as equivalent. This agreement is especially important, and correspondingly difficult, when we are dealing with symbolic translations, not within the same language, but as between different languages.

This brings us to the question of truth. Truth is a characteristic of certain symbol patterns, but, as we have seen, it involves not only the interrelation of symbols but also their meaning. We cannot therefore speak of *the* truth, and a symbol pattern which can properly be spoken of as 'true' for one individual may not be true for another, owing to the differences of meaning involved. Here again there is need for all our resources of tolerance and sympathetic imagination. These may not in themselves be enough to secure mutually harmonious behaviour, for in the attempt to resolve conflict of behaviour we may sometimes be dealing, not only with differences of meaning but also with differences of truth-value relative to the individuals concerned. In such cases time and patience in the conduct of personal and group relations, including reasoned discussion, are the only remedies.

I would say, therefore, that the first principle of a philosophy of life is the recognition and acceptance of those limitations of communication between human beings which I have described, and the ordering of one's way of living in such a manner as to take the fullest account of them. The second and third principles are concerned with actual conduct and the relevant ethical symbolism.

Conduct

In the chapter on Ethics, in the course of my consideration of the question of principles for the determination of conduct, I emphasized the division of theories dealing with this problem into those based on the idea of codes derived from sanction or authority external to the individual and those based on the actual results of conduct in the experience of the individual and his fellows. I gave reasons for believing that only a theory of the second type could be regarded as intelligible and effective, and indicated what seemed to me to be the essential features of such a theory. I will not traverse this ground again, but will consider somewhat further the practical consequences of the view I expressed and defended.

The chief consequence is that of acting in life-situations in that way which seems likely to result in the greatest measure of eutonic experience, and the least measure of dystonic experience, for all concerned. We have much to guide us in this. We already know a great deal about the kind of things which make people—including ourselves—happy or miserable, satisfied or frustrated, joyful or wretched, balanced and serene or a prey to conflict, anxiety, and fear. We know this from experience, and we are continually learning more about it from experience and experiment.

Let us therefore act on the eutonic principle in shaping our general way of life and in our conduct in particular situations, remembering always that our own interests and those of others in the matter of happiness and well-being are not conflicting but complementary. Such a way of living requires judgment based on that wisdom which is the fruit of experience, and calls for all the resources of knowledge, intellect, imagination, and emotion at our command. Its justification lies in its intelligibility, and in the fact that a way of living, if it is to be successful, must stem, not from an abstract symbolism, but from living experience itself—and this is so no matter how the term 'successful' is defined, within the limits of congruity. In our attempt to live in accordance with this principle only folly or arrogance could lead us to neglect the teachings of the great religions and philosophies, but let us judge these by the results which follow from them in experience, and not by any overriding authority alleged to be inherent in them or their exponents. I will return shortly to a consideration of religion, but I would point out here that people would never *freely* adopt a religion which led them into misery. In the end the criterion is always eutonic and not authoritarian.

We should, of course, defeat our own end if we tried to keep the aim of our philosophy of life continuously in mind in the day-to-day business of living. This is the measure of truth in the well-known tag that continual concern with the pursuit of happiness defeats itself. Nevertheless, in applying our philosophy we must mentally pass through a stage of self-disciplined action in which our aim is held consciously in mind before our whole pattern of living takes a form directed to the end in view without continual conscious preoccupation with that end.

The second principle of a philosophy of life is therefore to try to act always in the way which in the circumstances seems most likely to lead to the fullest possible measure of eutonic experience—remembering that in so doing one's own experience cannot be separated from that of others, since it is a fact of experience that the serving of the well-being and happiness of others is necessary if the individual is to find full satisfaction in life. In following out this principle we may be guided, not only by our own everyday knowledge and experience, but also by the systematized knowledge and skill embodied in the arts and sciences, particularly, so far as the latter are concerned, in biology, psychology, and the social sciences.

It would be beyond the scope of this book to discuss the application in detail of this principle of living. I have tried to do that elsewhere.[1] But the main conditions of happiness and satisfaction in life are the achievement of inner harmony and freedom from strain and conflict, with balanced adjustment to one's physical and social environmemt; self-fulfilment through creative activity and effort in the face of obstacles calling for the exercise of all one's abilities; and the contemplation and appreciation of the various types of value which characterize eutonic experience. In all this one of the most important elements—and one from which the fullest satisfaction *can* be derived—is that of personal relations.

So much for the individual's own conduct. But what attitude is he to adopt towards the nature and conduct of others? This depends fundamentally on the view taken in regard to 'moral responsibility.' I considered this question at length in a previous chapter,[2] where I gave reasons for holding that in no sense could an individual be regarded as ultimately responsible for his behaviour so as to be properly the object of blame or praise, reward or punishment. These incentives and deterrents may well have their appropriate place, but not for the reasons commonly held to justify them. In fact, it seems to me not merely false to say that a man is responsible for his nature—and therefore for his actions—but strictly meaningless.

This view, which I shall take as the basis of the argument which follows, appears to shock many people profoundly. I think there are two reasons for this. The first reason is that they feel that it is the negation of freedom. This, of course, does not follow at all. A man may be free, more or less, to express his nature without being 'responsible for' that nature, and indeed the meaning and definition of 'free' thus involved are the only ones which are both congruous and significant. But I will not repeat the reasons which I have already given in support of this view.[3]

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[1] In *Strategy of Living* (Harrap, 1944).

[2] See pp. 239 ff.

[3] See pp. 234 ff.

People are also shocked at such a view because they think it makes nonsense of the ideas of 'duty' and 'obligation.' This is not so, but it does call for a critical scrutiny of the terms in question, for it shows up those elements in the common usage of them which do not make sense.

I think there is no doubt that terms such as 'duty' and 'obligation' arise from conformity to a code originating in authority external to the individual, and that the inner impulse to act in accordance with such a code first originates from the necessity of conforming if unpleasant consequences are to be avoided. Arguments denying this, which try to show that duty and obligation are ultimates somehow inherent in the nature of things, seem to me to be nothing more than attempted rationalizations which are quite unconvincing and lead nowhere.

The questions then arise, duty to whom or what—and why? Now, if we say, for example, that we should act in such and such a way because it is the will of God and we 'ought'—that is, we are under an obligation—to obey the will of God it may properly be asked why we should obey God. We cannot answer this question without characterizing God, and then we are at once faced with all the issues to which I previously referred,[1] which lead us back to the eutonic principle. For the only significant reason for obeying God is that if He be all-wise and all-knowing He knows what is best for us all. Even so, we are still left with the dual problem of discovering what the will of God actually is and of satisfying ourselves that he has those characteristics which make obedience to him justified as intelligible and likely to lead to eutonic experience. The same considerations apply, of course, to any other external authority.

I hold, therefore, that there is no authority which, as such, can be intelligibly regarded as making absolute demands on us which cannot be questioned. The only justification for conformity to a code of conduct not imposed by force is the results in experience. It is sometimes held, however, that there is inherent in each of us something which makes demands on us in the realm of conduct, and that this is just an ultimate fact which must be accepted. If this means that we necessarily act in accordance with our nature I of course accept it, but I do not see what else it can mean.

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[1] See pp. 242 ff.

It is sometimes held, too, that views such as I am expressing would lead to chaos in personal and social relations, for people would say that it did not matter what they did, since all was determined and they were in no way responsible. This is indefensible in logic, for it results from the inconsistent mixing up of 'freedom' and 'responsibility' which I have already considered; while in practice I believe that the effect of the change in our attitude to one another would be such as greatly to improve our personal and social relations, and not such as to reduce these to chaos. The characteristics of such a change of attitude I must now discuss.

In the past it has generally been customary to regard those who, by actions inimical to happiness and well-being, offend against the person and against society as bad people responsible for their badness, and therefore fitting objects of censure and punishment. This seems to me indefensible. Let us instead seek to discover and to understand what it is that has led the offender to behave as he does. To this task it is necessary to bring all the resources of sympathy and imagination, reinforced as they now are by the systematic knowledge and skill deriving from the psychological and social sciences. If we can discover the causes of the individual's unfortunate behaviour we are in a better position so to influence him as to bring him into satisfactory adjustment to society, while at the same time increasing his own happiness and peace of mind; for it is a fact that anti-social behaviour is accompanied by, and indeed for the most part arises from, conflict and other dystonic factors within the individual psyche itself. In brief, let us not pass moral judgments on the conduct of others, but regard this rationally and factually, and order our own attitudes and actions accordingly.

Admittedly, it is difficult to exercise sympathy, tolerance, and forbearance in extreme cases, such as those of hardened and brutal criminals. But I suggest that we should regard and treat such cases as we do dangerous animals—that is, not pass moral judgments on them but accept them as facts, try to understand them, and consider what is to be done about them. Undoubtedly, there are some cases in which, in the present state of knowledge, there seems to be no remedial treatment that is likely to be successful. There is then nothing for it but segregation and restraint—and possibly even extermination, the pros and cons of which have yet to be adequately and satisfactorily assessed and balanced against one another. In less extreme cases, however, there is certainly a place for deterrent action; not for moral or vindictive reasons, but because such action does in fact influence behaviour, and, suitably applied, may result in beneficial changes, both in the individual himself and in his relations to society.[1] Similar considerations apply to the relations between groups, especially where recalcitrant and militant aggressiveness is involved.

Of recent years we have been moving more and more towards the views I am advocating in our treatment of juvenile delinquents. This is highly significant; but the principles on which our treatment of young offenders is now based derive, not from the fact that they are juvenile or from the fact that they are delinquent, but from an increasing realization of the true nature of the springs of human conduct. These principles are of general applicability, and there is no reason why we should not apply them generally.

I have been speaking only of 'bad' behaviour, for it is that which raises difficult and urgent problems. The same principles apply, however, to our attitude towards 'good' behaviour and 'good' people—though all that it is necessary to say about these is that they should not be hailed with pæans of praise but should be accepted as facts with joy and thankfulness.

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[1] See *Strategy of Living*, pp. 72 *ff*., for further discussion of the issue here raised.

I therefore suggest as a third principle in a philosophy of life that in our attitude to others, and in our treatment of them, we should not be concerned with passing moral judgments, but should have regard to all the facts of the situation and, according to our lights, exercise understanding, tolerance, and sympathetic imagination in an attempt to order our own conduct in that situation in such a way as to increase eutony—especially in the form of happiness and harmony—and reduce dystony.

Does all this mean that such feelings as liking, admiration, respect, and their opposites are altogether inappropriate? By no means: these are natural human attitudes and emotions which are facts of experience, and are conveniently, if somewhat colourlessly, summed up under the terms 'approval' and 'disapproval.' Feelings of approval and disapproval are spontaneous responses to experiential situations involving human conduct, but I see no significance in attaching to them moral judgment implying praise or blame.

Let me take a somewhat trivial example. It may be over-simplified in some respects, but I think it makes the main point. I disapprove of lying because I don't like liars, I don't like myself when I am lying, and I know from experience that lying makes on the whole for dystonic consequences. But I see no point in *blaming* people for being liars. It seems to me that the obvious thing to do is to accept, and take due account of, the fact that they are liars; to try to understand why they are liars; and to see what, if anything, can be done somehow by some one to remove this unfortunate trait.

Such an example raises a further interesting point. Is a lie ever justified? Arguments on such an issue which are based on supposed authority like the moral law are endless, and for the most part futile or inconclusive. But the eutonic principle supplies an immediate answer, though the application in a particular case may be difficult. The difficulty is, however, one not of principle but of fact. It is the difficulty of the discovery within the situation of just where the balance lies in terms of eutony and dystony; however, we at least have experience here to guide us, rather than some abstract hypostatization.

It seems to me that acceptance of principles of the kind I have suggested gives a meaning and significance to such precepts as "Love your neighbour"—still more "Love your enemy"—which is far more intelligible and concrete than any provided by the traditional moral principles, which have patently failed—and I cannot help feeling that it is partly for this very reason—to bring about in the world an approach to the ideals of conduct they inculcate, except in a very limited way. In fact, as I said earlier, the principles I support not only do no violence to the ideals and 'spiritual' values of our civilization but might well make their realization far more possible and likely.

It is of course true, and fully in accord with the eutonic principle, that in a human society there must be rules of conduct laid down by authority. But these succeed only in so far as they are based on experience, and not merely on abstract principles and dogmatic ideology. They are the proper field of politics, for politics is concerned with the governance of communities—that is, with the laying down of definite rules or laws for the control of human conduct in individuals and in groups and the determining of the general conditions under which men live, including the vitally necessary provision of incentives to—and opportunities for—the individual initiative and creative activity which are essential for a satisfying personal life and for the well-being of the community. In this politics is aided by the sciences of economics, psychology, and sociology. If it could be determined by the eutonic principle and guided by reason rather than by emotion and other non-rational factors we might be spared the puerilities which disfigure the political scene to-day. There must inevitably be differences of political opinion, and only experience can provide even a partial decision as between these differences; but surely they could be resolved so far as may be by reasoned argument, co-operation, and provisional compromise, rather than by accusations and abuse of the childish 'you're another' type which are all too familiar.[1]

In connexion with his study of political conflicts, more especially in the international sphere, a distinction has been made by Weldon[2] between what he calls "first order" and "second order" moral problems. First order problems are those involving the life and happiness of oneself or of other people whose life and happiness are regarded as not less important than one's own. Second order problems are those affecting one's own comfort and convenience, or those of other people. Weldon admits that no theoretical line can be drawn between these classes of problem, which is why they are both called 'moral,' and he is of the opinion that many standard moral theories have concentrated so closely on second order problems as to pay quite inadequate attention to those of the first order. This has led to the false conclusion that there is as wide agreement among normal people on what should be done in particular cases involving first order problems as there is on what should be done in particular cases involving second order problems. Weldon accordingly suggests that only first order problems should be called 'moral.' This is of course a matter of arbitrary usage of terms; but what is significant and important in the present context is that Weldon is led to use eutonist terminology in regard to both types of problem, while at the same time he points out that people will often make great sacrifices to maintain their principles in cases involving first order problems. This readiness to make sacrifices in certain circumstances has often been advanced as an argument in support of moral theories involving authority or sanction, with their associated traditional ideas of duty and obligation, and against theories of the eutonistic type. But, for reasons given earlier,[3] I do not think this argument can be sustained.

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[1] For further discussion see *Strategy of Living*, Chapter IV.

[2] See his *States and Morals* (Murray, 1946), pp. 230 *ff*.

[3] See pp. 228 ff.

It is clear, however, that political theory must be based on moral theory, for political theory is concerned with the governance of conduct, while moral theory, by the very derivation of its name, is concerned with customary habits of life crystallized in codes of conduct.

To turn to a different kind of issue, it has sometimes been urged against views of the kind maintained in this chapter that they provide evil men with rational support for their evil deeds. This seems to me a peculiarly inept argument, for, in the first place, even if the contention were sound, it would be irrelevant to the validity of the views in question; in the second place, these views do not provide rational support for evil deeds, for it is a fact of experience that deeds generally agreed to be evil make for dystony rather than eutony—this is really why they are called 'evil'—even in regard to the agent himself; and, in the third place, increasing acceptance, in theory and in practice, of views such as I advocate would, I believe, make for a general pattern of life in which evil deeds, so far from finding encouragement, would tend to disappear. In any case, other forms of moral theory might well be made the object of similar criticisms, for nothing could be much more unfortunate than some of the results of the conduct of those holding moral beliefs of an authoritarian character.

At this point I will leave the general discussion of the problems involved in conduct and pass, in conclusion, to a consideration of that most important aspect of human life, religion.

Religion

Experience shows that religion is necessary to every individual, for he cannot find serenity and satisfaction unless he has come to terms, in thought and in practice, with the universe in which he finds himself, and has adjusted himself to the agency or agencies immanent in that universe. A religion is a system of beliefs, embodied in a way of life, about the nature of the interrelations of the individual with the rest of reality, and it may take many forms; in particular it may be theistic or non-theistic.

It seems to me to be quite unjustifiable that any creed, sect, or person should claim to be the sole repository of truth regarding religion. For reasons I have given, we cannot significantly speak of *the* truth in respect of religion or of anything else. The meanings of the symbol systems in which religious beliefs are expressed will be different—often very different—for different people. Moreover, there is no reason whatever why any one particular religious symbol system should be regarded as essential to every one if the aims of human life are to be attained, whether these aims be expressed in terms of ideals of the traditional form or in terms of the eutonic principle. This view is supported by the history of religious argument and religious persecution. In the great—and largely fruitless—controversies of the past difficulties in connexion with meaning, which arise from the limitations of communication and of which the protagonists were entirely unaware, can, I think, be seen to have played an important part in bringing these controversies to naught; and when it has been impossible to reach agreement persecution has arisen through the attempt made by some to impose on others a creed in which they find no satisfaction, and often no sense.

The matter is, however, very different when we come to consider the way of life resulting from a religion. For it is a condition of the ordered and eutonic existence of each and all that the conduct of different people should be brought into harmony. As I have said, what is important in the end is not what you believe but how you behave—though your beliefs, in respect of their intelligibility, consistency, and satisfyingness, are of course important to yourself. As conduct is overt, it is possible to influence it, and so to direct it towards harmonious adjustment—even though this may very often be difficult. It is not possible to influence belief to anything like the same extent; nor, of course, can we ever know just what has been the result on belief of such influence as we have been able to bring to bear. But why should we worry about this? Diversity of belief is inevitable, natural, and, in itself, harmless. It is only when, allied with other factors in the nature of the individual, it is such as to evoke behaviour resulting in conflict, pain, and misery for the individual and his fellows that something must be done about it. This may be achieved partly through direct action in the field of conduct, partly through indirect action on conduct through attempts to influence the beliefs, so far as may be, from which refractory conduct arises—though we can actually be aware of the results only in terms of conduct, and not of belief. On the other side, we have experience every day of people who, though they can only be considered to hold very different beliefs, nevertheless live quite happily and harmoniously together in the same community.

In summary, it may be said that religion is necessary to all; that religions necessarily differ, no one having *the* truth of the matter; and that the ultimate test of a religion is eutonic. For the individual, it lies in the degree to which his religious beliefs bring him satisfaction, serenity, and joy. For the community, it lies in the degree to which the conduct resulting from these contributes to the eutonic experience of all.

At the present time apprehension is frequently expressed at the supposed general lack of interest in religion, especially on the part of young people, and all kinds of evils apparent in modern life are attributed to this. This seems to me to be a misreading of the situation. It is true that the number of recognized members of most of the religious sects, together with the number of people who regularly practise some form of religious observance, has been steadily falling during the present century, and is now comparatively small. On the other hand, I think that observation leads to the conclusion that there is no lack of *interest*—and again, especially among young people—in religion, and in the search for an intelligible and satisfying philosophy of life, though it might not be dignified by so high-sounding a title. But bewilderment and confusion prevail in a world in which order and stability are at a discount, and which is marked by conflicting and raucous ideologies and by violently opposed moral principles and codes of conduct.

I think there are two main reasons why the exponents of religion, for all their efforts, are on the whole failing to enlist adherents by meeting effectively the moral and spiritual needs of the people. These reasons are connected with two of the main topics of this chapter—namely, those concerned with communication and with the principles of conduct.

When one studies the flood of earnest and sincere religious exhortation, information, and prescription which streams forth from pulpits, over the radio, and in the Press and other modes of communication through the printed word, and observes the reception accorded it, it becomes apparent that the language and symbolism of this evangelism simply make no sense to most of those whom it is hoped to reach. This is not due to fatuity on the part of the preachers, nor to stupidity or viciousness on the part of the hearers. It arises from factors inherent in the nature of meaning, and in the corresponding limitations of communication, the effects of which have been increased by the failure of the symbolism employed by the exponents of religion to keep pace with the changing pattern of life, and with the associated changes in the general usage of language. The spread of religion will certainly not be possible on more than a very limited scale until the fullest account is taken by the exponents of religion, in principle, precept, and practice, of the factors to which I have referred. But this implies that what I have called the 'spread of religion' would take the form, not of the inculcation of particular codes and creeds, but of so guiding people that each may be able to build up and accept a system of beliefs about the universe and his place in it which he finds sensible and satisfying, and which leads him to a way of life in which he finds happiness for himself and harmony with his fellows and with the universe, no matter what may be the particular symbolism in which his beliefs are expressed. It might be that in the final result happiness and harmony in living would be associated with a symbolism of belief common to all—but that is no more than speculation.

The second reason for the failure of religion is, I think, that its creeds and codes have been traditionally associated with basic moral principles which are not well-founded, for reasons which it has been the purpose of a considerable part of this book to state and to support. I do not in any way attack the ideals of life and conduct set up by many of the great religions and philosophies, but I hold that the principles advanced to sustain these ideals—and the insistence that it is just as necessary to accept these principles literally and rigorously as it is to live in accordance with the ideals of which they are supposed to be the only possible ground—have led throughout human history to opposition and confusion in thought and to persecution and conflict of all degrees of horror in life itself. This has led to the impatience and bewilderment of to-day, the cure for which is, I think, only to be found in a thoroughgoing revision of moral principles, and consequent changes in ways of living, and particularly in our attitude towards problems of human nature and human relationships, and in our manner of dealing with these.

In our civilization the so-called pursuit of happiness already makes more sense to more and more people as the fundamental principle of conduct than do all the creeds and codes derived from, and enforced by, authority and sanction; but in a crude and narrow form it cannot be fully defended. The eutonic principle clarifies and extends it.

Much could be added to the outline of a philosophy of life which I have sketched, for the topic is inexhaustible; but I hope that some of the deficiencies of this chapter are made good—implicitly or explicitly—by what I have written in earlier chapters. I believe that acceptance of the eutonic principle liberates thought from aridity and inconclusiveness and action from ineffectiveness and resultant conflict; while acceptance of the principle of ultimate non-responsibility makes for understanding, tolerance, sympathy, and love in human relations.

I myself find it a great relief not to feel under the necessity of making moral judgments, as commonly understood, about people and their behaviour, but to be able merely to accept these as facts which give rise to situations in which action can be guided by principles which I find intelligible and satisfying —action which is not coloured and complicated by the attribution of blame or praise. If it be said that my views are unrealistic because they fail to take sufficient account of the intractability of human nature—and particularly of the conflict between our primitive impulses and the pattern of civilized life—I should reply that these facts in no way undermine the principles for which I argue, but present them with a problem and a challenge which in the end perhaps they alone are able to meet.

Conclusion

It might be said by some that this book, from its very thesis, is nothing but an unduly lengthy tautology. If this were so it would equally have to be said that, by the same thesis, it does not matter. The philosopher is part of reality, and in his thinking he cannot look at reality 'from the outside.' He and his thinking are integral to it. What is here called the 'tautology' of a symbol system is in fact what I have called 'closedness,' every symbol in the system being exhaustively related to all the other symbols. If certain symbols are not so related, the system therefore being unclosed, they would to this extent be mere noises or marks, incompletely integrated into the system. The terms 'true' and 'false' would not then be applicable to systems in which they were involved.

Symbols which are not completely integrated into the system with which they are associated—being, as it were, 'loose ends'—are in fact the 'ultimates' so beloved of some philosophers. To the extent that they are in this sense ultimate they are also non-significant, though they may sometimes evoke emotional responses. Their deficiency becomes apparent through the emergence of inconsistencies in the symbol patterns in which an attempt is made to include them, and the labelling of them as 'ultimate' is an attempt to retain them while avoiding the inconsistency. In language patterns, for example, we may sometimes find ourselves using certain words in a way incompatible with the general usage of other words in the system. Several examples of this occurred in the last chapter, such as 'duty,' 'obligation,' 'freedom,' and 'responsibility.' To speak of such words as ultimates, or 'corresponding to' ultimates, does not resolve the difficulty satisfactorily. This can be done only by revising the definition and usage of the terms involved so as to close the system and leave no loose ends. The word 'ultimate' cannot be applied appropriately to anything but non-symbolic experience, which is what it is and which cannot be conveyed by symbols.

A symbol system is to be judged by its self-consistency and comprehensiveness, and by the effectiveness of the responses it evokes, both in thought and in action. The criterion is the eutonic sense of satisfaction, satisfaction in thought resulting from harmony and intelligibility, and satisfaction in practice through the promoting of eutonic experience. It has been the aim of this book to try to develop such a symbol system, in the form of a coherent pattern of belief in regard to knowledge, reality, and life; but as the attempt itself involves a theory of the nature of symbolism, and therefore of rational argument, any acceptance of the resulting beliefs is in the end beyond the persuasions of reasoning, and must derive from a direct apprehension evoked by the symbolic statement itself.

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